THE ENGINEERING AND MINING JOURNAL.

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NOTE.—Communications relative to the editorial management should be addressed to Mr. ROTHWELL. The articles written by Mr. Raymond will be signed with a star.

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THE MEETING OF THE INSTITUTE OF MINING ENGINEERS.

THE meeting which commenced in Philadelphia on the 24th inst., and closes to-day (27th), was as successful as its predecessors, or as could be desired. The attendance was large, the papers read of great interest and value, and a large number of new members were elected. The official report of the meeting will appear next week, when we will give the names of those who attended, the titles of the papers read, and the names of the newly elected members.

BRITISH GOLD AND AMERICAN STEEL.

OUR good friend Mr. WM. A. SWEET, of Syracuse, has achieved a most important result in securing the establishment, at that place, of a branch of the well-known Sheffield house of SANDERSON BROTHERS & Co., to which a part of the works of the Sweet Manufacturing Company has been sold. To what extent Mr. SWEET had to be corrupted with British gold before he would consent to this arrangement, we do not pretend to say. We trust he sold himself dear, and we are sure that, at whatever price, the insidious and unprincipled foreigners got a good bargain when they got him. The name of the SANDERSONS will doubtless be considered a guaranty of excellence for the products of the new concern; but American purchasers will regard as equally, if not more, valuable the circumstance that Mr. SWEET himself is to remain connected with the works. *

THE AMERICAN GAS LIGHT ASSOCIATION.

THE American Gas Light Association held its annual meeting in this city on the 18th and 19th insts., and, as in former meetings of this association, the chief aim seemed to be to suppress anything that tended toward progress or that might possibly reflect upon the management of many of our gas works. The experience of the meeting of a year ago so thoroughly disgusted the progressive members of the association, that very few of them attended this one, and those who did come, still cherishing the fond hope that the objects of the association are really as the brave words in its constitution state—"The promotion and advancement of knowledge, scientific and practical, in matters relating to the construction and management of gas works, * * * to the end that its cost may be cheapened and its consumption increased"—have been again shown, in the most convincing manner, that these words are only intended as baits to draw in the progressive managers, in order that they may be the easier and more effectually controlled by a small but powerful "conservative" party.

One of the most careful, though at the same time progressive of our gas managers, and one who has charge of exceedingly important works, after listening to the proceedings of the association for two days, expressed his contempt for the whole affair as follows:—"This machine is run in the interest of a New York Company, an engineer's office, and a newspaper, and the plan is to draw together the practical men from the country and use them, if they have any useful suggestions to make, if not, give them something good to eat and send them home again." Now, we cannot agree with this opinion, for it is very generally understood that both the engineer's office and the newspaper, as well as the Gas Light Association, are "run in the interest of this New York Company." Moreover, the object of the company does not appear to be to learn from the progressive members, but rather to discourage all effort at improvement in gas making, or the introduction of science in the business, by "squelching," (as the President terms it), the guilty suggestion of needed reform and improvement by the fiat of concentrated millions of capital, and assumption of knowledge. When one of these magnates raises objection—as they always do to anything new or different from the venerable processes of our revered ancestors—few are so courageous as to persist further in the effort to introduce improvement. The Superintendent is given to understand that one of the chief recommendations to office is that "he will not try any experiments," and the approval of the said New York Company is sufficient to get for him or take from him his situation. The effect of this "interest" on progress in gas making is very similar to that of carbonic acid on the illuminating power of gas.

At the last meeting of the association a few revolutionary spirits persisted in speaking of something new in gas manufacture, and as some difficulty was experienced in effectually extinguishing them, a more efficient method than then existed had to be adopted to prevent progress making itself so prominent, for possibly so many of the members of the association might be converted to the spirit of the age as to make the association really a means of encouraging, instead of defeating, scientific gas-making. It was, consequently, decided, this year, that any paper or communication regarding any new or improved processes should be first submitted to an executive committee which was to pass upon, or "squelch," them (to use the President's term), if considered of no value to the association. This was the *coup de grâce* to progress, and nothing which in any manner conflicted with, or threatened, to supercede the old methods, could hope for the approval of a committee appointed in this interest. He who came with the intention of furnishing valuable nformation, upon an acquaintance with the committee and its instructions, felt the desire wither within him, and the revolutionary paper was guiltily buried in the deepest recesses of his pocket.

Nothing of interest was presented during the sessions of the first day, except a brief, but excellent description, by Mr. GOODWIN, of Philadelphia, of certain experiments recently made by him with CROOK's radiometer, with reference to its adaptability to photometric tests.

One ingenuous superintendent from a Western State presented a straightforward, sensible paper on the use of gas as fuel for cooking purposes, showing that he had demonstrated its economy so thoroughly to his customers that ninety per cent. of them now employ it. Some little enthusiasm was excited by this practical statement till a member asked, naturally enough, what kind of stove was used, and the name of the manufacturer being given it was objected that this was "advertising." The discussion was closed by a solemn inquiry from an Eastern member as to what should be done with the coke, if the companies sold so much gas for fuel! This blighting suggestion disposed of the subject, a suspicion evidently having crept into the minds of the brethren that anything that was proven economical for the consumer must be bad for the manufacturer.

During a discussion upon the question of "gas not accounted for," viz., the difference between the quantity registered by station and by consumers' meters, it was frankly admitted by an eminent authority that this difference is only in small part chargeable to actual leakage and waste, but is mainly the result of contraction of volume by action of cold. This is undoubtedly true, and it may be interesting to add what was not stated, but is nevertheless equally true, that this percentage of shrinkage is reckoned in the estimate of cost, and the public are made to pay for it, and it then serves a second purpose as an argument to the consumer against the possibility of any reduction in price.

The proceedings of the Association closed with an amusing incident. It had all along been deemed quite improper, not to say unconstitutional, to bring to notice any article or improvement suspected of being patented, and indignant remarks had been made by members of this scientific body concerning any attempt to sell wares in so distinguished an assembly, and yet no protest was uttered when the Chairman, before putting a motion to adjourn, called attention to an excellent mechanical device for pipe cutting, the invention of *a friend*, which was then exhibited, explained, and circulars distributed. The tool is really a good one and worthy of advertisement in this paper, but the point we make here is that to secure favorable mention before this organization an inventive genius must suggest no improvement on the time-honored bench retort, and must appoint a prominent shareholder of the Manhattan Company agent for the sale of his goods.

The fact is, the American Gas Light Association is a failure, so far as it may have been intended as a means of promoting science and knowledge in the profession. It has always acted as an extinguisher on progress, and such it apparently will continue to be so long as "it is run in the interests" which now control it. It is an obstruction, not an aid to gas engineering, for it discourages, or "squelches," every progressive tendency, for fear it may result in demonstrating to the public how much of the exorbitant bills paid for gas is really a tax to cover the ignorance of gas managers, and lest the adoption of new processes may, by decreasing the cost of gas, interfere with the enormous dividends now declared, and, eventually, necessitate the adoption of improvements that would make much of the present expensive plant worthless.

That there is need of that progress, that spirit of investigation, that growth of science and knowledge in the profession, which this misnamed association effectually represses, is evident to all outside of the sacred band, and it was recently admitted, in an unguarded moment, by the docile organ of "the interest which controls the association," in the following words:

"We do not hesitate to use the term Science of Gas Making, because the fact is becoming every day more and more prominent, that, wherever the business is conducted without regard to the scientific principles involved, it is becoming more and more unsatisfactory * * * there is a very general belief that gas bills are too high. * * * The natural expedient is to reduce cost of production, and, in many cases, the discharging of a few men, and, perhaps, trying to get a little more out of the coal is considered sufficient effort in this direction. But this will not cure the evil. The remedy is too mild, and what is far worse, it is of the wrong character. The present excessive cost of manufacture is a brain difficulty, or a difficulty resulting from long disuse of the brain faculties. The rule of thumb has had too full a sway, and the time is coming when it must vanish, or profits will dwindle, from the fact that extravagance and want of knowledge are most often traveling companions.

"The true remedy is to reduce the practice of gas-making to a true scientific basis. By this we do not mean a theoretical basis, but a practical working one, founded

upon correct scientific principles. * * * The best possible apparatus, a good library of the best books, *well used*, and a hearty co-operation with each other, will place the profession where it should be, and enable them to take the lead in giving gas at lower rates, instead of being obliged to follow the 'cry,' which is ever likely to become extreme and unreasonable, if not controlled."

NEW PUBLICATIONS.

THE THEORY AND CALCULATION OF CONTINUOUS BRIDGES. By MANSFIELD MERRIMAN, Ph. D., Instructor in Civil Engineering in the Sheffield Scientific School of Yale College. New York: D. VAN NOSTRAND. Price 50c.

THE *raison d'être* for this book, the author states, in his preface, to be—

1. An interest now prevailing among American engineers in the subject.

2. The fact that at some recent bridge-lettings plans have been offered for a continuous structure, which would seem to indicate that the system will also be tried here.

4. A large economy (from twenty to forty per cent.) as indicated by the theory of flexure.

5. The adoption of continuous bridges by foreign nations, whose "experience has not yet shown that their system is inferior to that of single spans."

After the recent able discussion of this subject by Mr. C. BENDER, and other accomplished engineers, in our technical periodicals, it needs some such good cause to justify the infliction on the profession of a new book on the subject, Mr. MERRIMAN has made an excellent *resumé* of the foreign literature upon the subject of continuous bridges, and has greatly simplified the calculations of such bridges, by the formulæ which he has given for certain of the more important problems. He has rendered a service to engineers who desire to investigate this subject, for which he will receive the thanks and credit which he has earned. While we recognize his services in this respect, we cannot altogether endorse his calculations as to the relative economy of continuous and single-span bridges. The question seems to resolve itself rather into one of practice, than theory—of workshop manipulation, rather than of theory of flexure; and, in this view of the case, we think the reference to European practice is of but little importance.

The art of bridge-building has reached a much higher degree of perfection in this country than in Europe, and the reason for this is not difficult to find. In Europe, and particularly in Continental Europe, the design of bridge to be built is almost always under the control of the engineer in charge of the work. He makes his plans and sends them to the ironworks and machine shops, to have them executed. There is, practically, no competition, and it rarely happens that an opportunity occurs for a comparison of the relative economy of different systems. In this country, on the other hand, the method adopted is the very best possible for securing a direct and fair comparison of the relative merits of different systems. Usually, the total length of the bridge to be built, the maximum moving load it is required to carry, and the limit of strain to be allowed in the various materials to be used, are almost the only conditions given, and tenders are invited for a structure which will carry the load safely, without over-straining the material used. The utmost liberty, as to general design and details of construction, is allowed, and, consequently, that system which attains, in actual practice, the greatest economy in material and construction, is generally the successful competitor. It does not, by any means, necessarily follow, that the system which secures, theoretically, the greatest economy in the use of the material, produces the cheapest structure, for account has to be taken of the facility and cheapness with which the several parts of the bridge can be made and put together, the durability of the several parts, after erection, and other conditions which at once suggest themselves to the practical engineer, though they are not always so apparent to the college professor, whose knowledge of the subject is mostly theoretical.

Now, the idea of continuous bridges is not at all new, and there are many of our bridge engineers who, though fully acquainted with the theoretical advantages of this system under certain conditions, have yet preferred to build independent span bridges, where the competition is so close that the very smallest percentage of economy is diligently sought after. This adverse argument, though generally satisfactory to busy engineers, is not quite so to the scientific, theoretical engineer, hence the subject comes up periodically for a fresh settlement.

We do not think that any such economy of material, as from twenty to forty per cent., as claimed by Mr. MERRIMAN, can be found in any case where the two bridges are properly proportioned. Indeed, we think that taking, for a given case, the depth of girder best adapted to each system, little or no economy of material will be found in the continuous bridge, while in cheapness of construction, durability, and adaptability to varying physical conditions, the independent span systemis the most economical, and such, the general practice of American engineers would seem to indicate, it has been found. The question, as we have stated, is usually a practical one; and as it stands to-day, the economy of continuous girder bridges seems to exist only in professors' estimates, while that of independent span bridges is in the final cost-sheet of the completed structure.

CONVERSAZIONE OF THE INSTITUTE OF MINING ENGINEERS.

THE Thursday evening meeting at the rooms of the Centennial Committee of the American Institute of Mining Engineers have been held regularly, with one exception, since the last one which was noticed in the JOURNAL. On the evening of September 14th, Major POWELL, of Washington, made some very interesting remarks on the monoclinal ridges of the West.

The delegation of workingmen sent over by the German Government were addressed in German on the evening of September 21st. The address consisted principally of a general description of the resources of our country and its manufacturing industries. The 28th of September being Pennsylvania day no meeting was held at the rooms.

The meeting of October 5th was addressed by Prof. W. P. BLAKE, who described the zinc deposits and mines of Northern New Jersey. Colonel W. MILNOR ROBERTS, of the Society of Civil Engineers, gave an address on the evening of October 12 on Centennial Influences, Engineering Thought, and on Gravity—its relation to engineering and to all things. HON. W. J. MCALPINE, also a member of the Society of Civil Engineers, read a paper, October 19th, on the Early Development of Engineering.

THE NEW NOMENCLATURE OF IRON AND STEEL.

REPORT OF THE INTERNATIONAL COMMITTEE APPOINTED BY THE AMERICAN INSTITUTE OF MINING ENGINEERS ON THE NOMENCLATURE OF IRON AND STEEL.

Whereas: The recent production of soft, cast, malleable compounds of iron by the Bessemer, the Siemens-Martin, and the crucible steel processes appears to demand a new nomenclature of iron compounds, for the following reasons:

1st. The term "steel," by which these soft products are commercially and professionally designated in England and in the United States, does not completely distinguish them from previously existing "steel" which would harden and temper.

2d. A nomenclature recognized in all languages seems desirable, as well for commercial as for scientific purposes, especially as law-suits, already commenced, depend on the meaning of the term "steel."

3d. Although homogeneity, due to fusion, is usually recognized and is by this committee recognized as the most definitive characteristic of both hard and soft steel, this quality may be equally well expressed in other terms, thus leaving the old term, "steel," to define the malleable compounds of iron, which will harden and temper:

Therefore, resolved, That this committee recommends the following nomenclature:

I. That all malleable compounds of iron with its ordinary ingredients, which are aggregated from pasty masses, or from piles, or from any forms of iron not in a fluid state, and which will not sensibly harden and temper, and which generally resemble what is called "wrought iron," shall be called WELD-IRON (German, *Schweisseisen;* French, *fer soudé*).

II. That such compounds, when they will from any cause harden and temper, and which resemble what is now called "puddled steel," shall be called WELD-STEEL (German, *Schweiss-stahl;* French, *acier soudé*).

III. That all compounds of iron with its ordinary ingredients, which have been cast from a fluid state into malleable masses, and which will not sensibly harden by being quenched in water, while at a red heat, shall be called INGOT-IRON (German, *Flusseisen;* French, *fer fondu*).

IV. That all such compounds, when they will from any cause so harden, shall be called INGOT-STEEL (German, *Fluss-stahl;* French, *acier fondu*).

(Signed),

I. LOWTHIAN BELL, P. TUNNER, A. L. HOLLEY, DR. HERMANN WEDDING, RICHARD AKERMAN, THOMAS EGLESTON, L. GRUNER.

INTERNATIONAL EXHIBITION OF 1876.

Special Report of the Engineering and Mining Journal.

ADMISSIONS FOR THE WEEK ENDING OCTOBER 26, 1876.

Date.		Paying Visitors.	Press, Complimentary, and Exhibitors.	Total Visitors.
Previously reported.....	.....	5,815,763	1,459 651	7,275.414
October 17.....	138th Day..	92,938	12,146	105,084
" 18.....	139th " ..	124,777	14,097	138,874
" 19.....	140th " ..	161,355	15,052	176,407
" 20.....	141st " ..	94,135	13,530	107,665
" 21.....	142d " ..	72,929	12,113	85,042
" 23.....	143d " ..	73,894	12,338	86,232
Totals.....		6,435,791	1,538,927	7,974,718

THE CASSIAR, BRITISH COLUMBIA, GOLD MINES.—The shipments of gold dust from McDame Creek, thus far have been of the most encouraging character, the amount received by the two steamers yesterday, is variously estimated at from $180,000 to $200,000. HILTON and Company are now making about 60 ozs per week, with six or eight men employed. CAPPER ALEXANDER'S claim, just above them, is yielding $12 to $14 per day. Long ANDREW DONOHUE, just arrived, has washed out as much as fifty dollars to the pan. On Snow Creek about $25.000 was taken out of one claim at an expense of not more than $6,000. Below Snow Creek about one mile of flat will pay from $8 to $20 per day, if water is introduced. Below McDame's Creek a large amount of ground extending over a mile will pay $8 to $12 a day, if water can be brought in. The North Star Company on McDame Creek have struck it rich. On Deloire River the argentiferous galena vein has been visited and a considerable quantity of ore shipped to Swansea for reduction. The promise of this vein, which has been recorded, is very rich. The flat at the mouth of Dease Creek is known to be rich, but the great trouble is to bring down the water and to obtain a good fall into the lake for the dirt. This enterprise is now being seriously considered by practical miners, and it is to be hoped that the Government will not be backward in aiding them in every way, as it will give employment to a number of miners next season There are excellent chances for 500 or 800 men to make good wages next year. On McDame Creek, alone, at least 300 men can be well employed, with provisions plentiful and cheap. Cassiar offers the greatest inducement of any place on the Pacific coast for miners as it is easy of access and not an expensive trip to make. Several rich silver veins are reported as discovered in Cassiar district. Specimens came down by the steamer *Gussie Telfair* and are pronounced by competent judges to be of extraordinary richness. One lead is but a few miles from Glenora on the Stickeen River.—*British Colonist*, Oct. 4th.

WYOMING COAL AND OIL DISCOVERIES.—A new coal mine has quite recently been opened near Hillard, Wyoming, from which the village will be supplied this Winter, at $4 per ton, delivered. The oil well, about two miles west, is being worked, and yields a barrel a day. It is sold to the railroad for 40 cents a gallon, by whom it is used for lubricating purposes. The well is now fifty feet deep, and the owners are sinking it still deeper, with the prospects of securing a much larger yield.

A SYNOPSIS OF "THE WAGES QUESTION."*

ONE learns to look critically upon attempts—no matter by whom made—to set aside any generally accepted belief, and furnish a substitute therefor. Probably every man of mature years has arrived at solutions, satisfactory to himself, of the more prominent social problems, and experiences an involuntary resentment toward every disturber of his system. Creeds involving inconsistencies are better than no creed at all, in the estimation of most of us, and few will abandon an anchorage of probable security to drift at the will of every wind of doctrine, without seeing a very clear course to a better haven.

Professor WALKER, of Yale College, discussing "the Wages Question," seems to recognize the onus put upon him by the nature of the case, and yet treats the subject with a bold and unhesitating pen. To declare that his book has an argument, and to attempt its statement as a syllogism, would be unfair, as imputing to it the purpose of enunciating a new scheme of political economy where its scope is, in truth, rigidly limited. He rehearses the principles of social science which bear upon his subject, in a series of not especially well-arranged chapters, agreeing in the main with the popular acceptance of them, and only dissents squarely from three doctrines, which, in his own words, "wholly unfounded, have become so widely spread that one can make no progress by so much as a step toward a philosophy of wages without encountering them."

There are, First—the wage-fund theory, which means that a certain proportion of the capital of a country is set apart for the payment of wages: that this proportion is a variable one, owing to different industrial causes; that legislation, sentiment, or strikes cannot affect it; that its amount, divided by the number of actual laborers, gives the average wage, which measures the rate of wages for the time; that a variation of either wage-fund or laboring population at once influences the rate of wages. Second—the "*laissez faire*" doctrine, which means that the spontaneous action of individuals, each seeking his own interest, will achieve the best possible industrial result; that government interference by legislation can only be mischievous; that, as touching the wages question, the laborer always realizes in one form or another the highest wages the employer can afford to pay. Third—that the "*entrepreneur*" class may be disregarded in the distribution of wealth, which means that in the highly organized industries of modern times, capital and labor are alone sufficient for production; that the actual employer is but a stipendiary of the capitalist, whose wages are paid out of his development of the capital; that without these "Captains of Industry" capitalists might venture, and laborers work, without loss and detriment to both.

To discover whether Professor WALKER thoroughly refutes these doctrines, demands more than a passing glance, and an excellent preparation for the investigation will be a brief review of the plan of his book, and this the more that one of its notable features is an originality of definition—in a colloquial if not a technical sense—which will be sure to baffle, if not pointed out in the beginning.

The course of discussion is as follows: the whole history of wealth, of which wages is a feature, consists of four phases, viz.: Production, Distribution, Exchange, and Consumption. All wealth must pass through the first and last phases, that is, must be produced and consumed, or, what is the same thing, used to its deterioration; this is its Alpha and Omega. The other phases it need not necessarily undergo, as in the case of the Polynesian gathering breadfruit enough to suffice for his consumption during the rainy season. Had he compelled some feebler savage to assist in the gathering, and maintained him from the accumulated store; and farther, had he bartered portions of it for cloth of cocoa fiber to shield his body from the rain, both distribution and exchange would be exemplified.

Just at this point a digression must be made with reference to exchange. It is commonly taken for granted that all wealth is capable of this phase, and the prevalence of the idea perhaps affords a partial explanation of the certain recurrence of license, disaster, pinching, moderation, and boldness, in the conduct of business. Professor WALKER sets right the misconception, illustrating with striking examples. He says: "No matter how rice might advance, or other food decline in price, no human power could take all the crop out of India, and bring back a food substitute to the people, even were it LIEBIG'S extract." The whole transportation system of India, reinforced by the revenues of the British Government, broke down under the effort in 1873-4, to distribute to the people of certain districts of India an amount of rice equivalent to but a small portion of their usual crop. The railroads and water courses of the United States could not take all the crops from the farm where they were raised.

Abundance begets carelessness; sanguine natures, relying on some general maxim relative to the degree of risk warranted by a given capital, make ventures, disregarding the possible convertibility of their wealth; drive ashore when the storm comes and tread every step of the way that, once in a decade or thereabout, brings around again to the starting point, while mankind grows older, but not very much wiser.

This much has been said to lead up to the statement that, wages pertain solely to the distribution of wealth—thus narrowing the question as much as the case will permit—and here Professor WALKER urges a new tabulation of the industrial element with great seeming propriety. While it is fitly assorted with regard to *function* in the production of wealth, in distribution it is more rational to separate it into *classes*. He lays stress on this distinction, as important to his argument, and finds cause for it in the fact that, while the parts taken in production by capital and labor are readily separable, yet the instances in which the capital is furnished by one person, and the labor performed wholly by a different person, are so surprisingly few in comparison with those where the capitalist is to some extent a laborer, and the laborer more or less a capitalist, that an attempt to distribute the result of their work, according to respective functions, entails hopeless confusion. The distribution of wealth, then, must be with reference to some other system, and one which separates the industrial element into the capitalist class, the employers class, and the wages class, is that adopted by Professor WALKER. As this division is peculiarly his own, a clear idea of it will be best obtained from the following quotation. He limits the CAPITALIST CLASS to "first, those who by age, sex, or infirmity, are disabled from active operations, men retired from business, women of all ages, children and young persons of both sexes; the crippled and incompetent for whom provision has been made; these in the order of nature own a large part of the property of the world. If their wealth is in their own hands, they know their limitations, and do not undertake to employ it personally; if their wealth is held for them, the responsibilities of trustee or guardian are incompatible with the ventures of manufacture or trade. Secondly, those who from dignity and love of leisure, as is especially the case with men of inherited means, are indisposed to increase their store by active exertions, but live upon their income; and those who are engaged in professions which do not allow the investment of their earnings. Thirdly, the laboring classes, whether receiving wages or salaries, who are able, even out of scanty earnings, to make savings which they are, from the nature of their industrial position, unable to apply personally to production. Small as are the individual contributions of this class to the loanable capital of a community, the statistics of the savings banks show what is the virtue of a large multiplier. There might be added—perhaps, should be added—to the vast aggregate of capital thus constituted, the accumulating profits of industries which are already full of capital up to the point of "diminishing returns," where overflow must take place into newer branches of production. Thus, no small part of the net annual profits of agriculture in Somersetshire and Hampshire, go up to London to be loaned to the manufacturers of Yorkshire and Lancashire; while in the United States the current is reversed, and the manufacturing dividends of New England go to the West, to be invested in agriculture, which can still afford to pay eight, ten, and even twelve per cent. Here again, we have a large body of capital which, though the owners of it are employers in some branch of industry, yet goes to swell the aggregate of loanable capital, to which employers who are not capitalists, or who wish to be employers beyond the extent which their own capital permits, may resort under the modern organization of credit."

The share which the capital class receives as a party to the distribution of the results of industry, according to the adopted analyses and definitions, is denominated the returns of capital, which may consist of either rent or interest.

At the risk of being thought to indulge unduly in quotation, it is impossible to refrain from using Professor WALKER'S graphic definitions of the employers class, illustrating, as it does so clearly, the scope and importance of its functions. In the highly organized forms of modern industry, he says: "The mere possession of capital no longer constitutes the one qualification for employing labor, and on the other hand, the laborer no longer looks to the employer to furnish merely food, and the materials and tools of the trade; but to furnish also technical skill, commercial knowledge, and powers of administration, to assume responsibilities and provide against contingencies; to shape and direct production, and to organize and control the industrial machinery. And, moreover, so much more important and difficult are the last specified duties of the employer; so much rarer are the abilities they require, that he who can perform these, will find it easy to perform those; if he be the man to conduct business, capital to purchase food, tools, and materials will not, under our modern system of credit, long be wanting to him. On the other hand, without these qualifications, the capitalist will employ labor at the risk, or almost the certainty, of total or partial loss. The employer thus arises to be master of the situation. It is no longer true that a man becomes an employer because he is a capitalist. Men command capital because they have the qualification profitably to employ labor. To these captains of industry, if one pleases to call them so, labor and capital alike resort, for the opportunity to perform their several functions. I do not mean that the employer is not, in any case, or to any extent, a capitalist; but that he is not an employer, simply because he is capitalist, or to the extent only to which he is a capitalist."

The share which the employer class receives as a party to the distribution of the results of industry, according to the adopted analyses and definitions, is denominated profits.

The wages class will be most readily indicated by a process of exclusion. The majority of political economists, in treating of labor, make of it five divisions, viz.:

First. Those who work by themselves, for themselves, either on their own land or in mechanical trades. This class may consume their entire product, or exchange part for other goods, but there is no distribution.

Second. The tenant occupier of land, who gets the whole product, minus a rent charge.

Third. Persons working for hire, but not employed with reference to the profits of production; such as domestic servants, soldiers, and clergymen.

Fourth. Persons working for hire in any vocation who are paid from the product of their industry.

Fifth. Employers who, by personally conducting and controlling business operations, earn the "wages of supervision and management."

The remuneration of all these is commonly styled wages; and, in consequence, the five groups would constitute the wages class in the usual acceptance of the term; but Professor WALKER has no such catholic idea of it. Preliminarily, he restricts the wages class to only the *employed*, and, as etymology and popular usage agree in defining wages as the remuneration paid by one person to another for his services, the limitation is just. This excludes, at the outset, the first group of the series whose members neither employ, as they work alone, nor are employed, as their reward comes from the product of their own labor. The second group, having a right, by law, or imperative custom, to work on certain lands, and to employ the fruits of their labor, less a definite share made over to the landlord, cannot be ranked with *the employed*, and, therefore, may also be ruled out. They are not dependent on the will of another for the opportunity to labor, and although their product is subject to distribution, their share is in no sense wages. The third group is taken bodily out of the wages class by affixing to it a new name, viz.: the SALARY, or STIPEND, class. The employers' income is not due, in any part, to their employment—indeed, their employment is the result of income, actual or assured, which is lessened in direct ratio to their employment. The expectation of profit furnishes the test for discriminating between the wages class and the salary, or stipend, class. ADAM SMITH said: "A man grows rich by employing a multitude of manufacturers; he grows poor by maintaining a multitude of menial servants." The fourth group Professor WALKER admits to his wages class, with a qualification, viz.: that labor remunerated by a share of the product cannot be said to receive wages. The essence of wages is that they are stipulated in amount. A laborer working on shares, is, in effect, a partner of his employer, sharing with him risk, accident, good fortune, and finding his remuneration in a certain proportion of a variable product.

By definition, such a one cannot be of the wages class. The fifth group is excluded by the premise that the wages class embraces only *the employed*. Thus it appears that, of the five divisions of labor, only one, and that to a limited degree accords with the colloquial and etymologic definition of the term wages class, and, as a point of departure, let it be understood that it includes all persons who, and only such as are employed in production, with a view to the profit of their employers, and are paid at stipulated rates.

The synopsis has thus far done little more than indicate the phase of wealth, namely, its distribution, with which wages have to do, and characterize the parties to this distribution. The next step is naturally to inquire what the true wages question is, and this must be relegated to a future article. T. W. R.

October 18, 1876.

* "The Wages Question," by Prof. WALKER. Published by HENRY HOLT. Price $3.50.

SUSPENDED HOT BLAST STOVES.*

By John Birkinbine, Philadelphia.

A RETROSPECT of the growth of the production of pig iron for the past half century, would be the history of the invention and introduction of heated blast as applied to the smelting of iron ores; and as the apparatus employed was improved in conception and construction, the economical operation of the furnaces to which it was attached was the more marked, and the production correspondingly increased.

To compare the original iron box placed over a coal fire with the modern hot blast stove, with its combustion chamber, gas burners, and air regulators, would be as unfavorable to the former as to contrast the product of the little Blauöfen with the yield of the improved furnaces of to-day. But as these little Blauöfen were the germs from which the larger plants have grown, so from the crude apparatus invented and applied by NEILSEN has grown, in the face of great opposition, the more economical hot blast stoves now in use.

It is not surprising that an innovation like heated blast should have received a large amount of attention from metallurgists; nor that men of recognized ability should formerly have been found both among its champions and opponents; but it is remarkable that, at the present day, with the results of careful research and thorough experiment, compiled in convenient shape for perusal, there are iron masters who still consider it economy to allow the products of combustion to escape into the atmosphere, rather than utilize them in heating the blast, because of a supposed injury to the quality of the product.

In the present state of knowledge and practice, it is proper to express as an axiom that a well-constructed hot blast apparatus is essential to the economic operation of an iron-producing plant.

Of the interpretation of *proper construction* there is of necessity a variety of opinions, and with a view of solving the problem the apparatus for heating blast has from time to time assumed various forms. Boxes, cylinders, and pipes placed horizontally, vertically, inclined, or in circles and spirals, have been tried; there have been pistol-shaped pipes, double pipes, divided or diaphragm pipes, syphon pipes, and as much variety in the mains, connections, flues, and setting.

It is probable that to the introduction of the bell and hopper, in furnace tunnel heads and the combustion chamber and gas jets in hot blast ovens, the present acknowledged economy of heated blast is largely attributable—the former for the facility afforded for collecting and diverting the gaseous products of the furnace, the two latter by promoting thorough combustion of the gases which, to a large extent, prevents injury to the iron pipes.

The apparatus at present most prominently before metallurgists, in connection with heated blast, is the WHITWELL stove, and it is fully entitled to the credit given to it. But, unless the increased temperature attainable with the fire brick stoves be practically demonstrated to be of sufficient value to compensate for the additional first cost, the expense of construction will prevent their general adoption.

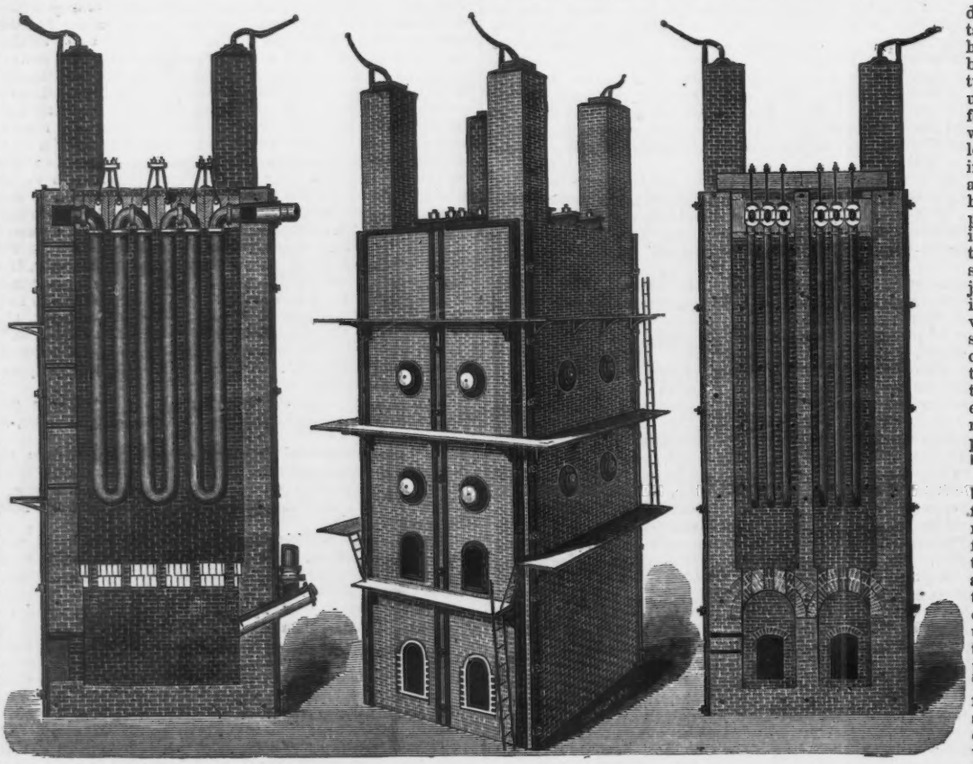
The erection of WHITWELL stoves, sufficient to maintain a uniform temperature of a hot blast, will, at the present time, cost about two and a half times as much as well-constructed pipe ovens for the same furnace.† Much of the trouble with pipe hot blast stoves originates in defective construction and want of care in operating them.

During a visit made last year to a prominent Western furnace plant, the writer observed a syphon pipe hot blast oven being torn down after a short blast. The pipes were, to use the founder's expression, "very drunk," and the oven was badly demoralized. An investigation left little room for surprise. The gases were discharged from the down comer into a small masonry channel as an apology for a combustion chamber, which was not supplied with any air-regulating apparatus; the resulting flame in some instances impinged directly upon the pipes. An examination of some of the broken pipes demonstrated that they were imperfectly cast of inferior metal, the shell in one instance being two inches thick on one side, and but about half an inch thick on the opposite side.

It is in the comparison with such constructions that the permanency of the fire-brick stoves appear to such an advantage. Where the pipes are made of good metal, cast in dry sand, with core and mold concentric, and set in ovens well built and stayed, provided with a proper combustion chamber and gas burners, under perfect control so as to obtain a thorough combustion and fill the pipe chamber with a highly heated atmosphere, the apparatus is by no means a temporary one, and may be run for years without renewals or repairs.

As an instance, the oven at one of the furnaces of GROVE BROTHERS at Danville, to which the combustion chamber was first applied in 1850 (fifteen years before it was patented in England), is still in use and in fair condition. Unless some means are found of greatly reducing the first cost of the fire-brick stoves, our furnaces will continue to depend upon pipe ovens; and it is my privilege to invite your attention to an improvement which, I believe, will do much toward cheapening the cost of construction and maintenance of iron pipe hot blast stoves. In its presentation I desire to say that, believing the subject would interest the Institute, I asked of the inventor (my former partner) the privilege of presenting it here, and thus subjecting it, in its infancy, to the candid criticism of many of our best iron workers.

MR. WEIMER'S oven contains eighteen U pipes, twenty feet long. The cross section of the pipe is an ellipse, twelve by four inches inside measurement, and the heating surface of each pipe one hundred and nine square feet. The usual bed pipes are dispensed with, and the U pipes are suspended from the top of the oven by means of suspension bolts and beams.



SUSPENDED HOT BLAST STOVES.

To overcome the difficulty of maintaining a uniform heat in the combustion chamber, two chambers are used, each seven feet high, three feet wide, and ten feet long—the shortening of the chamber and increasing its height having proved efficacious in equalizing the temperature. Besides the usual gas jets a series of one inch air pipes are walled into the sides of the gas chambers, so that the air may be thoroughly diffused throughout the mass of gas supplied to the chamber.

There being no bed pipes to interfere with the arrangement of the flues connecting the combustion and pipe chambers, they can be arranged so as to give a uniform distribution of heat in the pipe chamber. These openings are made six inches square. The pipe chamber is also divided into two compartments, each of which is four feet wide, twelve feet long, and twenty-four feet high, placed above and communicating with its own combustion chamber, entirely independent of its neighbor.

This arrangement obviates the difficulty of the hot and cold sides of the stove, and prevents the heat from becoming excessive on either side. There are no doors to the pipe chamber, a few explosion valves and sight holes, the latter acting also as cleaning holes for removing dust by steam jets, alone breaking the continuity of the walls, which are made twenty-two inches thick, to prevent radiation and support the weight of the pipes and mains.

On the top of the front end wall a short main 12 inches×14 inches×36 inches is placed, having on one side a connection for the cold blast pipe, and on the opposite side three branches corresponding in cross section with U pipes. To these branches three rows, each of three U pipes, are connected, and extend across the oven to a longer main placed on the rear end wall. This main has six branches, three in each chamber, the blast passing into it from the three rows of pipes in one chamber, and out of it into the three rows of pipes in the adjoining chamber and through them into a short three branch main connected with the hot blast pipe. The branches of the mains and the ends of the U pipes have flanges which are planed to a true surface and connected by means of keybolts. Lugs are cast on the top of each arm of the U pipe to which suspension bolts are secured, these bolts pass through saddles or washers, resting upon short, fifteen inch I beams, supported upon the side walls of the oven. The entire masonry of the oven can therefore be constructed before the pipes are placed in position.

Just below the connecting flanges of the U pipes, small projecting collars are cast, upon which (after the pipes are placed) five bricks are laid, forming a roof and protecting the joints from the action of the heat. On the top of the side walls an iron wall plate is laid, which can be continued from one stove to the other when they are in a row. This plate is cast with a projecting rib, so as to form

* A paper read before the American Institute of Mining Engineers at the Washington meeting, February, 1876.

† Excepting where the behavior of certain materials in individual furnaces under what may be termed "heated" and "super-heated" blast is to be considered, the value of fire-brick and iron-pipe stoves must be compared according to the interest upon their first cost, plus the annual expense of maintenance. Much of the condemnation which the iron-pipe stoves receive from some furnace managers is unjust, and would be of more weight had they bestowed upon the construction and operation of the iron pipe stoves an equal amount of care and attention given to the fire-brick stoves.

a rail, upon which wheels of a truck carrying a crane or derrick may run. By this means a pipe which may become damaged can be readily removed and another put in its place in a short time.

But, from the construction of the stoves, the necessity of frequent renewals is not probable, for the pipes are placed to sustain the greatest amount of heat with the least possible fatigue on the metal, their pendant positions and swelled bottoms having a tendency to keep them straight and prevent warping; the swelling also placing a surplus of metal where oxidation is the most destructive, thereby aiding in equalizing the life of the entire pipe.

In these ovens there is no metal in the lower oxidizing atmosphere in the pipe chamber, the bottom of the pipes being four feet above the floor of the chamber; but, on the contrary, the heating surfaces of the pipes are thrown into the upper and more uniformly heated portion of the pipe chamber, which, in the ordinary standing pipe stoves, is necessarily left vacant.

Among the additional economic features of these stoves, are the following:

There being no bed pipes there is a corresponding decrease in the weight of castings required.

The absence of door openings simplifies the masonry and lessens the castings required.

There being no duty upon the arch over the combustion chamber, than that of a dividing wall, considerable staying can be dispensed with.

The convenience of removal, by merely removing a section of the brick or tile roof (which rests upon the collars cast on the U pipes), and driving out the keys of the desired pipe, will materially lessen the cost of necessary repairs.

DIATOMACEOUS SANDS OF RICHMOND, VIRGINIA.*

By Martin Coryell.

EHRENBERG was the first to publish, and direct attention to, the peculiarities of the diatomaceous deposit of Richmond; but how, and by whom, he was supplied with the material for his microscopical investigations, is not generally known; but we may presume W. B. ROGERS, formerly State Geologist of Virginia, furnished the material, and may have given the geological position or horizon. Of these facts we have no available evidence, nor any estimate, of the thickness of this strata of diatomaceous or infusorial earth.

At the request of a member of this society, I have investigated the subject, and offer the following facts as the result:

The preliminary efforts were most abortive and discouraging. My object was made known to eminent citizens of Richmond; some had heard of the sand, and some had not, but all kindly referred me to other persons, whom they thought would have the desired information. Finally, several practical explorers in this field were found, each one having had a separate and distinct object in view, among whom I may mention Mr. JOHN OTT, of the Southern Fertilizing Company; Dr. WILLIAM TAYLOR, State Chemist; C. PETICOLAS, Microscopist; Captain ROBERT H. TEMPLE, Civil Engineer; Major C. M. BOLTON, and C. M. SMITH, Civil Engineers, and formerly engaged in constructing the tunnel under Church Hill, in Richmond.

The City of Richmond is generally described as being built on seven hills. This is not the fact, geologically speaking. Originally, there was an immense plateau of land, about two hundred feet above tide, in which a deep excavation was made from the west to east by the James River cutting down to the granite, opening southward and meeting the valley of the James in various ravines and gullies, in the principal of which are Shockoe and Gillies Creeks. The formation is tertiary, subdivided into all the classified divisions, but at the present moment no one has been found to make this section a special study. ROGERS' early classifications and diagrams, with all their imperfections, are the only published records, and the printed editions are long since exhausted. The City of Richmond is really situated in these ravines of the James, Shocko, Gillies, and their connections. The profile marked A represents the section of the plateau as exposed in making the tunnels and railroad cuttings through the City of Richmond, and it will be observed that thirty feet of the top stratas, as found further inland, is denuded. The tide flows up to the granite ridge which makes the rapids, not only of the James River, but also of the Delaware, Schuylkill, Potomac, and many other rivers emptying into the Atlantic.

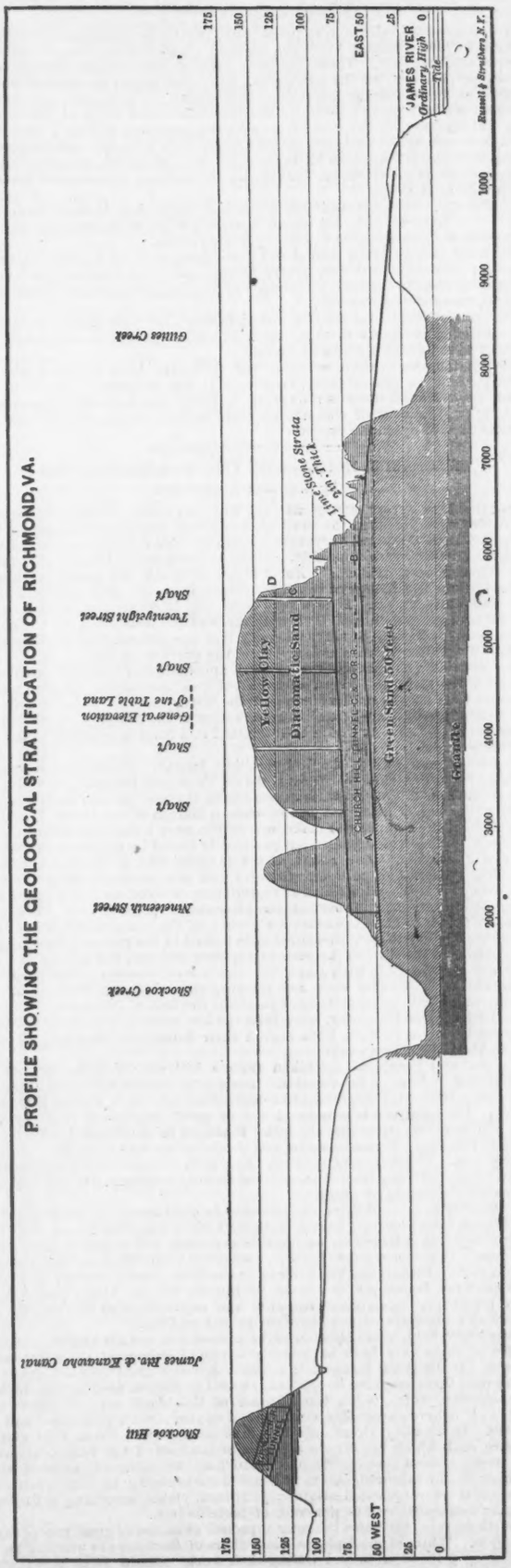
At Rocketts, near the termini of the Chesapeake and Ohio Railroad, the tide covers the granite some thirteen feet; near the mouth of Shockoe Creek the rock comes to the surface and forms the bed of the river, and thence rises rapidly to the west, about one hundred and twenty feet above tide in the distance of ten miles. It has a descent of about eighty feet within, or adjoining, the city limits, and is capable of furnishing power to an enormous extent. On the sides and bed of the river are the valuable granite quarries now wrought and used in the public buildings of Washington and other cities, and the theory of deeper and greater disintegration of rocks in the Southern States, as compared with the Northern, and as set forth by Dr. T. STERRY HUNT, is fully exemplified in this section along the James River. Upon this granite bed is a sandy clay some fifty feet thick, of various colors and composition, then a ferruginous sand so compact in places as to resist the pick and crowbar, and which, when struck, produces sparks of fire, and is classed with the rocks. Upon this strata is the blue deposit through which the tunnel was made. The thickness of the strata in the tunnel was found to be eighty feet; and the color, when first exposed, a dark blue, but on long exposure becoming nearly white. Upon this is a yellow clay, very distinct in color, and filled with water-worn siliceous boulders, nearly the size of hens' eggs. This strata is thirty feet in thickness, and upon it are various strata of clays which make the soil of the upland country, and under present cultivation do not indicate much fertility. In excavating the tunnel, large quantities of bones and teeth were found, not interspersed through the material, but generally in pockets. The workmen, observing the interest manifested at the finding of the deposit and the anxiety to secure every relic, conceived them to have a money value, and did not fail to appropriate all the fine specimens. Subsequently, not realizing pecuniarily as expected, they neglected and permitted to go to waste what would have been highly prized specimens in well-arranged cabinets.

The specimens now exhibited were procured by Mr. C. M. SMITH, an engineer in charge of the tunnel excavation during its progress, and are loaned by him for the inspection of the Institute:

No. 1—Lumbar vertebræ of a whale (Eschrichtius).
" 2—Atlas " " "
" 3—Cervical " " "
" 4—Carcharodon Megalodon (an enormous tooth of the shark species).
" 5—Coprolite.
" 6—Caudal vertebra (the last) of a fish.

* A paper read before the American Institute of Mining Engineers, at the Washington meeting, February, 1876.

No. 7—Box containing shark's tooth; vertebræ (small, but perfect); vertebræ (larger, but imperfect).



No. 8—Box containing caudal vertebræ (the last) of a fish; caudal vertebræ of a dolphin (Priscodelphinos); fragment of a large bone, undetermined; large

tooth; bone, undetermined; atlas of a dolphin (Priscodelphinos, Miocene); lateral dermal plate of a sturgeon; teeth of a pecary; jaw-bone and teeth of a protantoga corindeus; spine of a ray.

No. 9—Miocene limestone; a level strata in the tunnel, as represented on profile.

The microscopic slides were prepared by Mr. C. L. PETICOLAS, from materials obtained from different localities, such as Church Hill, French Garden, the Capitol Grounds, etc. These localities yielded the most satisfactory and interesting specimens for the microscope, but failed to give the geological horizon or thickness of the strata containing the diatoms.

When MR. PETICOLAS was shown the importance and value of the true position and thickness of the strata from a known base line, he very kindly devoted his time to establish these facts for this paper, and, with the knowledge and assistance of Major CHANNING M. BOLTON, he was furnished with material from well-established points in the tunnel and the railroad excavations, marked on the profile A, B, C, D.

To the eye, there is a uniform strata eighty-five feet in thickness, blue in color when first exposed, and becoming nearly white after long exposure; this was generally denominated the diatomaceous strata.

From the bottom of the tunnel and lower portion of the blue strata, material from the points A and B were nearly barren, and of an inferior type; from the point C there were a greater abundance of diatoms, and from the location D, at the top, there were no results.

These results were not entirely unsatisfactory, but time did not permit us to extend the observations further, but it will be done, and in such a systematic manner as to be instructive and useful.

This diatomaceous sand, or infusorial earth, has been known a long time, and its extent is, undoubtedly, large; yet it has not been utilized, or made profitable, although there is no reason to doubt that a proper preparation by washing will make it of commercial value as a polishing powder, or for the manufacture of dynamite explosives.

IRON MAKING IN THE GREAT VEIN COAL REGION OF OHIO.

By M. C. Read, Hudson, Ohio.

A COAL which is very persistent over the coal fields of Ohio, exhibits a remarkable development in the south part of Perry, and the north parts of Hocking and Athens Counties, varying in thickness over a large area from ten and a half to a little over thirteen feet. This has given to this territory the name of the "Great Vein Coal Field." But it is not so much the increased thickness of the vein, or the change in the character of the coal, which gives this field its peculiar advantages. It is a very hard dry burning coal, having a large amount of fixed carbon with little sulphur, and the tests made by the chemist of the Ohio Geological Survey, showing that the greater part of the sulphur passed off with the volatile matter during the previous coking.

The chemical analyses and the general appearance of the coal, commended it to all of the geological corps, as a coal of great excellence for iron making. Practical tests have now demonstrated the correctness of these conclusions. And having just returned from an examination of the territory, it has occurred to me that your readers would be interested in a brief description of the progress there made.

About ten months ago, the first smelting furnace of this region was completed. It was erected by Messrs. BAIRD, THOMAS & DESHLER, of Columbus, Ohio, some four miles west of Shawnee, about three miles from Gore Station on the Hocking Valley road, and on the western margin of the Great Vein Field. This enabled the company to make use of the ores below the horizon of the great vein, which had already been practically tested by the furnaces of Newark and Zanesville. The result of ten months' run is exceedingly flattering. No. 1 grades of mill and foundry iron ore produced from the native ores, using the new coal without any admixture of coke, and at a cost leaving a very satisfactory margin, even at the present low price of iron. It may not be proper for me to state the exact net profits of the ten months' run. It will be sufficient to say that, with a three mile tunnel to the railroad, charging also the building of the road to the current expense account, the profits are quite as large as is compatible with a healthy condition of business. The proprietors are so well satisfied, that they are erecting one additional furnace at Gore Station, which will be ready to blow in about the first of December.

The Licking Iron Company, who, from the low price of iron, were compelled to suspend work at Newark, have moved their furnace to Shawnee, which has been in blast about two weeks.

The coal and limestone are taken from a hill adjoining the furnace, and dumped just in front of the elevator. The ore is hauled by teams about two miles, but a tram-road in process of construction will soon render this unnecessary. The company is mining an ore of great excellence, both by stripping, and from one entry into the hill. It ranges in thickness from eighteen inches to two feet. It roasts easily, and produces an excellent No. 1 mill and foundry iron. The company are now using with it one-sixth Lake Superior ore, and are producing their iron at a cost so low, that they are entirely satisfied with their margin of profit.

The marked success of these experiments is producing its natural results. The Newark Coal Company have a furnace with a capacity of about 25 tons, nearly completed at Shawnee, which, it is expected, will be put in blast within sixty days. Gentlemen from Chicago, associated with others at Columbus, are about to erect a furnace on Snow Fork, and a New York Company is proposing to erect two furnaces at the head of Sunday Creek. Other practical iron men of long experience are investigating the capabilities of the region, with the view of immediate active operations in iron making.

In the whole field, some seven or eight horizons of ore are known, although very few of them have been extensively explored, except at their immediate outcrops. At the Baird furnace, the ores below the great vein are available. At Shawnee, these may also be worked, as well as the ore used by the Licking Iron Company, which is on the horizon of the black vein of Tuscarawas County. It is here apparently a mixture of the carbonate, protoxide, and sesquioxide. In Sunday Creek, all the ores between the Great Vein and the Pittsburg coal, which appears in the hills to the east of the valley, are available. Here, at least seven horizons of ore may be observed, some of which have been so far explored, as to indicate their presence in large quantities, and one of them, a hydrated sesquioxide of iron, yields, according to Professor WORMLEY's analysis, over 61 per cent. of metallic iron.

Everything now indicates the near approach of an era of great prosperity in this region. While in most places the owners of furnaces are wanting an advance in the price of iron, and letting their works remain idle, here there is great activity in furnace-building, and the present price of iron yields a profit which is, evidently, satisfactory.

The coal ore and limestone are found in so close proximity, and of so fine a quality, as to reduce the cost of iron to a minimum, and while lands can now be purchased at such rates as will secure a perpetual supply of the best grade of coal to the owners, at a cost of sixty cents per ton, it may be confidently predicted that a very large part of the crude metal here produced will, in a few years, be worked into the various forms in which it is to go into the hands of the consumers.

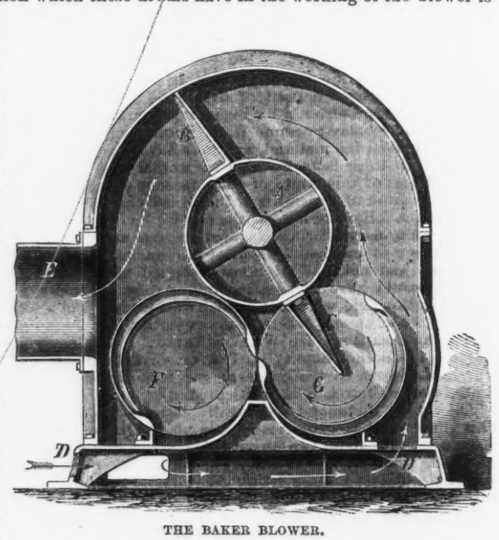
BLOWING AND VENTILATING MACHINES AT THE PHILADELPHIA EXHIBITION.

Special Correspondence of the Engineering and Mining Journal.

(*Continued from page 269.*)

THE BAKER BLOWER.

THIS is a machine which is of comparatively recent invention, having been first prominently brought into notice at the Fair of the Franklin Institute at Philadelphia, in 1874, at which time it was awarded a silver medal for its general superiority. The machine consists of a box-shaped casing, with cylindrical head, in which revolve three horizontal cylinders, or drums, two of which are placed at the bottom of this casing, and having three arcs in the same horizontal plane, while the axis of the third cylinder is placed above and on the center line between them. The two lower cylinders are placed so that three sides revolve closely together without actually touching, and they also make tight joints at four other points, as will be seen from the accompanying section drawing. The only action which these drums have in the working of the blower is to serve as abutments to the imprisoned air. The spaces left in the abutment drums, as shown in the cut, have now been reduced in size by bringing the internal diaphragms up so as to more nearly touch the vanes of the central drum as they pass across them. The upper drum is provided with two vanes placed opposite each other, and which closely fit the cylindrical head to the casing. All of these parts are made of cast iron turned up. In order to allow the vanes to pass through the bottom half of their revolution without coming in contact with the two lower drums, the latter are cast with openings on one side through which the vanes pass. As each vane engages with these drums at every revolution of the upper drum, they are geared to run at double the speed of the upper drum. It will readily be seen, from the section shown, how the air is drawn in and forced out, the amount, less the loss from leakage, being equal to twice the semi-annular space included between the upper drum and the casing. A portion of this is afterward lost by the discharge into the air inlet of the volume of compressed air which has entered the space in the lower right hand drum, which is necessary to permit the passage of the vanes. In order to lessen this amount these spaces have been reduced in size by carrying the internal web out so as to more nearly touch the vanes when they enter. The escape of compressed air in this way, at each semi-revolution, makes a slight pulsation in the air at its point of entry, but this can be entirely prevented by conducting the air through a box or trunk, the acquired momentum of which neutralizes the effect of the out-coming blast. A slight pulsation is visible in the air delivered, but its action is in no way detrimental, as has already been explained. The power used in forcing the blast is entirely applied to the central drum and its vanes, and in consequence the only strain which is brought upon the gearing is that used in overcoming the friction of the two lower drums. The clearance space which exists between the surfaces of the holes in these drums and the revolving vanes is so great that no amount of wear, short of the breaking of the gears, could cause any interference. The surfaces of contact having circular sections also prevents the necessity for closely fitting gearing. In case of wear in the journals of the drums, the bearings, which are outside, can be adjusted.



THE BAKER BLOWER.

The principal machine exhibited by WILBRAHAM BROTHERS, of Philadelphia, who manufacture the BAKER Blower, is what is called a No. 5½ machine. A horizontal engine is directly connected to it, which makes from 80 to 90 revolutions per minute, when heated up. The blower has a displacement of 30 cubic feet per revolution. All the working parts of this machine being made of iron, no change in their construction is necessary, except to provide flanged inlets, as well as flanged outlets, in order to adapt them to gas exhaustion. The construction of the machine is such that the casing can be easily removed so as to expose the working parts.

The workmanship, as shown on the machines exhibited, is generally good, and is particularly so in the fitting and adjustment of the vanes, casing, casing strips, and drums, to each other.

The location of this exhibit is in the Pump Annex to Machinery Hall.

THE GOLD MINES OF CHILI.—The party of adventurers who left this city several months ago, under the command of a Dr. BURNS, for the purpose of prospecting the gold fields of Catapilco, in Chili, have been heard from. The analysis made showed that the gold was of the highest grade. The samples shown were very numerous, and some of the nuggets were larger than an almond. Works have been started at Catapilco with great activity, and, according to calculations made, each laborer gets from forty to sixty dollars gold per week. When all the machinery is in place, and the whole work definitely organized, the yield will be two or three times as abundant. —San Francisco *Bulletin*, Oct. 17.

ABSTRACTS OF LECTURES ON MINING.—No. XV.

By Prof. W. W. Smyth, M.A., F.R.S., Royal School of Mines, London.

(*From the London "Mining Journal."*)

In the last lecture we examined some of the contrivances used in boring apparatus, which had been devised to meet certain difficulties. The discovery of the oil wells in the United States gave a wonderful impetus to the operations of boring in that country. The iron workers and machine makers showed great activity in preparing suitable apparatus for the work, and these plates of engravings of the pieces of apparatus made by MORRIS, TASKER & Company, of the Pascal Iron Works, will show how complete and varied that apparatus is, and how, on the whole, it is simpler than that used in Europe. The rods are sometimes of iron, sometimes of wood tipped with iron, and there are various arrangements to facilitate the fall of the tool, and a portion of the rods independently of the rest. In some cases the upper rods are attached to a piece which slides down a short distance over the tool when that is giving its stroke, so that the upper rods are but little affected by concussion.

The suggestion has been made, and with good reason too, that if a jet of water was kept playing to the bottom of the bore-hole it would facilitate the operation, by constantly washing away sand, gravel, etc., formed by the cutting tool. Some years ago a patent was taken out by a Frenchman for this process, but it appears that a patent was taken out long since by an Englishman of the name of BEART for a similar method. In many of the deeper bore-holes water is present, and when in sufficient quantities to overflow it will carry off much of this matter; if the water is not already present a stream of water is injected down on the inner side of the annular boring tool. When you come to very deep bore-holes this plan is met with many difficulties. A very ingenious method of cutting these holes is the adaptation of one invented by LESCHOT, for the purpose of boring the holes for the shots of gunpowder in mines. It consists of an annular tube, originally of soft iron, now usually of steel, in the lower edge of which is placed a series of small diamonds—of course, diamonds not suitable for gems—black diamonds, etc. A rapid rotatory motion is given to the instrument, and it cuts its way down around a central core, which is withdrawn from time to time in lengths of from 6 to 18 inches. The powder formed by the action of the borer is continuously washed out by a stream of water forced down the hole by a small injection pump. For boring holes of moderate depth, where it is necessary to examine the cores from time to time, this apparatus will be found very satisfactory. This method was taken up in England by a company of which Major BEAUMONT is the leading manager, and has been employed in sinking the scientific bore-hole at Battle. The most remarkable bore-hole put down by this method was one in Bohemia, which reached a depth of over 2,000 feet.

We come next to a modification in the manner of suspending the boring tool, which was introduced into Europe comparatively recently, but which appears to have been practiced in China from a very early period. When it was stated, some years ago, before the French Institute by some missionaries from China that those people had carried down bore-holes to a depth of 3,000 feet, at a time when the French were priding themselves in being the first to have attained a depth of 1,800 feet, you may conceive the incredulity with which the statement was received. But the missionaries were able to verify their statements, and the fact is quite true. The tool is suspended by a rope (made in China of the bark of the bamboo), and thus the excessive and increasing weight of the rods is avoided. The method of working very commonly applied is that of a spring pole, which in some cases, according to the quaint ways of the Chinese, is provided at its free end with a platform and a seat above for the men while they work the pole with their feet. Some of the French engineers turned their attention to this plan, and employed it in several instances, mainly for the purpose of sinking to the water-bearing beds below the chalk. The work can be carried on with comparative rapidity; in good solid chalk upward of 30 feet a day can be penetrated. In these instruments the tool has to be of considerable length, in order to secure as far as possible verticality of direction. Some varieties of tools have been devised which will not only cut the rock but also bring away the material with it. For example, in one case the top of the tool is something like a conical box, into which the broken material is washed by the action of a jet of water passing down the interior of the cylindrical tool and up the outer side through channeled spaces. Wire-ropes have been employed in some instances, but the general material is hempen rope; whatever material is employed, it should be something on the strength of which we can rely. In spite of all precautions, however, breakage will sometimes occur, and then a great deal of time may have to be spent in extracting the broken rope and tool; in some cases it cannot be done at all, and the only thing is to chop it to pieces, or to abandon the hole. (In the sinking of the Kentish Town bore-hole, where rods and not ropes were used, one of their greatest feats was the removal of a broken tool when near the bottom. It was chipped to pieces, and as much as possible was removed, then the remaining pieces were gathered together into a small heap in the center of the hole by a piece of apparatus like fingers. Then an annular cutter was used to cut round the central piece, and, lastly, this core was removed with the pieces of the broken tool lying on its upper surface.) One of the greatest works of this rope method in Europe was the sinking of the well at the Military School, Paris, to a depth of 1,000 feet; the person at the head of the management asserted that even at this great depth the tool could be controlled and regulated easily by the hand above.

The next system of cutting to be mentioned is that patented by Messrs. MATHER and PLATT; a paper on the subject was read by them before the Society of Arts, some years ago. Their apparatus differs from those already described, in two main points, first, in the way of working the machine at the surface, and secondly, in the character of the tool below. A flat hempen or wire rope is employed to suspend the tool, and this passes over a pulley above the hole, and on to a drum, being clamped at an intermediate point during the working. A small cylinder and vertical piston were placed so that when the steam was admitted below the piston, the piston-rod might raise the pulley with which it was connected, and with it the tool, which was allowed to fall by the descent of the piston. Means were provided for regulating the length of the stroke, and the bore-hole might be worked up to as much as 12 or 14 inches diameter. The tool is a great, long, and heavily weighted iron rod, lengthened in order to keep the hole as near the vertical as possible. Inasmuch as you cannot have with a flat rope the torsion necessary to revolve the tool, an ingenious means was adopted for accomplishing this. The rope was attached below to an iron bow which was again connected with a movable collar, the two ends of which were cut into somewhat inclined teeth. This collar could move up and down through a space of a couple of inches or so, and locked at each end of its movement with a corresponding set of teeth on the bar of the tool. These two sets, however, were so placed that one was half a tooth in advance of the other, and it will be seen that the effect of the alternate locking of the collar with one and the other of these sets will be to cause the tool to rotate through half a tooth each time. This apparatus is found to work admirably and satisfactorily, but the question of expense is still under discussion. The most remarkable performance of the machine hitherto has been the boring at Middlesborough for water, some 11 years ago. A very interesting point about this boring was that at 1,100 feet, they struck in rock salt, and magnificent cores of that substance were brought up; the boring was carried to 1,300 feet, and there being no object in carrying it further it was stopped.

Very frequently, in putting down bore holes, you cannot get a hole to stand for more than a few yards without portions of the walls beginning to fall in, on account of the incoherent nature of the materials composing them, as sand, pebbles, etc. It is necessary to prevent this, for such matters might fall on the boring tool and jam it up. A great addition to the expense is thus necessary at an early period in the undertaking, in order to provide linings for the bore-hole. It is generally considered by engineers that wood would be the most suitable material for this purpose, but for the fact that so large a bulk of it is necessary as to reduce the bore-hole almost to nothing. The materials generally used are cast and wrought iron, copper, bronze, and zinc, according to the character of the water in the hole, and the corrosive effect it might have on any of these substances. Pipes of wrought iron are generally favored, and where that is corroded, bronze, or zinc-iron, is used; zinc has been employed with advantage in Belgium in contact with sulphurous waters. The first pipe is put into the ground and pressed down by weights; a second is placed on the end of the first, and the two are connected firmly by a collar and rivets, and the pressure is continued, and so on. In some recent cases screw joints have been used, but they are more expensive. The friction increases with the length of the pipes already down, till at length it is not possible to force them down further; then suitable tools must be employed to enlarge the bore-hole below the tube; or a second smaller set must be put down, telescope fashion, inside the first. For the same reason a third set, still smaller, may be necessary, and it will be conceivable how rapidly the expenses will increase by this doubling and trebling of the lining in the upper parts. If an accident happen to these pipes by their striking a hard rock, then the serious task of withdrawing the whole may have to be undertaken; and various instruments have been devised for the purpose. (The lecturer then described some of these instruments, examples of which, along with various kinds of boring apparatus, lay on the lecture table.) The finest tube of this kind ever constructed, the lecturer supposed, was that of the La Chapelle bore-hole, near Paris, the second set of which was 5 feet 3 inches in diameter, with a total thickness of two centimeters (about four-fifths of an inch).

With regard to the arrangement and distribution of the bore-holes for the purpose of testing the ground, several points have to be noted. It is very important to recollect that the result of a boring may give us a very false idea, unless we are in a condition to rectify it by knowing something of the geology of the district. The putting down of a single bore-hole gives us but little information; by multiplying our borings we may hope to get a fair average of the district. Gross mistakes are sometimes made concerning the thickness of a bed, which has been penetrated, by neglecting to allow for the dip of the beds. Thus in Fig. 18 the distance, *a b*, traversed by the bore is not the thickness of

FIG. 18.

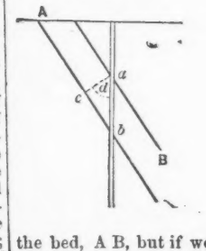
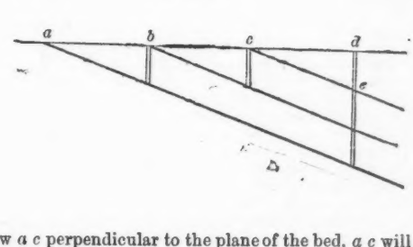


FIG. 19.



the bed, A B, but if we draw *a c* perpendicular to the plane of the bed, *a c* will be its thickness. And knowing the angle, *d*—viz.: the dip of the bed, A B, and the length, *a b*—simple geometrical construction, or trigonometrical formula, will give us the value of *a c*. In a district where the beds dip pretty uniformly in one direction—as in the Durham coal field, for example—it would be a great mistake to put down one deep bore-hole where the same amount of information could be obtained from two or three smaller ones, inasmuch as the expense of boring increases rapidly with depth. Thus, in Fig. 19, instead of proving the three beds of coal, *a b c*, and the measures between, by means of the single deep bore at *d*, it would be much better to acquire the same information by sinking the three shallow pits, *b c d* (as far as *e*), each proving the ground from the surface down to the seam at which the preceding one left off. In certain districts there are persons who undertake boring as their trade, and have a certain tariff of prices, which, however, the lecturer felt bound to say was somewhat deceptive, because as soon as any little difficulty occurred, or any rock slighty harder than the rest appeared, they required extra pay for it. They are very soon daunted by a slightly harder rock, and are apt to look on whin (and he had had half-a-dozen different things pointed out to him as whin), limestone, and all other hard materials as exceptional. The tariff he found in use at Newcastle some few years ago was 7s. 6d. per fathom for the first 5 fathoms, 15s. for the second 5 fathoms, and so on increasing 7s. 6d. for each 5 fathoms. The Diamond Boring Company vary their arrangements a great deal, but in some cases their tariff has been, for the first 100 feet, 8s. per foot, 16s. for the second 100 feet, and so on. It will be seen that this will bring you up to a very high figure when you get down to great depths, hence one advantage of several small bore-holes instead of a single deep one. Mr. KIND, some years ago, undertook to put down, in any country of Europe, bore-holes of a diameter of 12 inches at what would appear to be a very moderate rate—80 francs a meter down to 150 meters, 150 francs a meter from 150 to 400 meters, 200 francs from 400 to 500 meters. The rope boring in France has been carried out at very moderate rates, the apparatus being so much less expensive than in any other methods. In the hands of inexperienced persons the above prices would be greatly exceeded; to mention one case merely of a bore-hole in the great oolite, not many miles from London, put down at public expense, when they left off at 600 feet the price had reached £12 per foot. The great bore-hole at Sperenberg, near Berlin, cost 58,118 thalers, the thaler being equal to 3s.

U of M

KROM'S SYSTEM OF ORE CONCENTRATION.

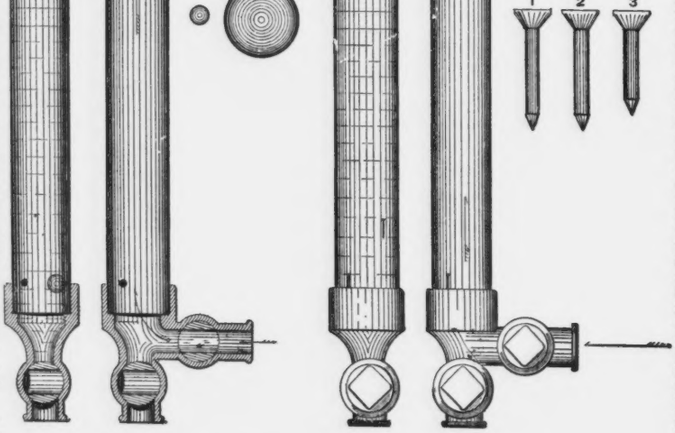
(WITH SUPPLEMENT.)

WE illnstrate, in a special supplement, this week, a system of ore concentration which has passed through the trying, expensive, and unsatisfactory stages of experiment and probation, and has arrived at the dignity of an accomplished success. Since Mr. KROM's ingenious system of dry concentration was first illustrated in these pages (vol. xiii., page 58, *et seq.*), though the principle has been maintained, several improvements in the mechanical arrangements for carrying it into practice have been made, till, at the present time, the working of every part of the system seems to have arrived at the point where it gives entire satisfaction. We do not suppose that it is perfect—no good process ever is—and no engineer of the ability and ingenuity of Mr. S. R. KROM ever rests satisfied with his past achievements, no matter how satisfactory they may be to others.

Dry concentration has met with much opposition from the advocates of wet dressing, and while it was generally admitted that, theoretically, air possessed many advantages over water as a medium in which to separate substances of different densities, it was frequently questioned whether, in actual practice, the results would confirm the theory.

Mr. KROM has solved the question in the practical, that is to say, in the only satisfactory way. In order to illustrate the fact that the separation is more easily and perfectly effected in air than in water he says :

"I erected two glass tubes, each 2 inches in diameter and 8 feet high. One of these tubes I filled with water ; through the other I forced a regulated blast of air. I found that, practically, ⅛ inch globule of galena, and ¼ inch globule of quartz, fall in equal time in the column of water. But when the blast of air was regulated to retard the galena in falling to the same extent as water, then the ¼ of quartz was sustained by the blast of air, and did not fall, while the galena fell as rapidly as in the tube of water.



"In experimenting with other forms, such as shown in the cut marked 1, 2, and 3, I regulated the current of air in the air tube, to give the same resistance as water would to the falling bodies of equal weight and size, so that when I let fall two of equal weight and size (1 and 2), one in the water, the other in the current of air, both reached the bottom in equal time. I then let fall No. 1 and 3 in water, and when No. 1 reached the bottom, No. 3 was about 10 inches behind ; and next I let fall the same No. 1 and 3 in air ; No. 1 fell in the same time in the air as it did in the water, but No. 2 did not fall at all. Thus demonstrating that instead of less margin, we have in air a much greater margin for separating ores than in water. The experiment proved that ⅛ globule of galena, and ¼ of quartz, which are equal falling in still or moving water, can be separated by air. The results correspond exactly with the results obtained in practice—viz., that with less sizing, better results can be obtained with air than can possibly be reached with water. We have in air a medium which will act with sufficient force and power to properly agitate, suspend, and lift the ore, and, on account of its small density, the ore can be lifted and allowed to subside from 420 to 500 times per minute, and does not, like water, afford a current or stream sufficient to carry away the mineral. Moreover, water limits the lifts to 120 per minute,

"A still further illustration of the remarkable difference in favor of air, as a concentrating medium, is found in the fact that the air-jig concentrates successfully all the crushed ore except floating dust ; that is, all that is not of a grade finer than about 1-240th part of an inch in diameter, is successfully treated by the air process. But with water, it becomes difficult to concentrate with the jig finer grains than 1-25th of an inch (or ore from a 12-mesh screen).

Whatever the system of concentration, whether dry or wet, it is in the highest degree important that the pieces of ore should be as nearly as possible of the same size. This, it is well known, is practically impossible where stamps are used. One of the chief losses in concentration is due to the fact that the fine dust is carried away by the stream of water or air, and this takes place, to a much greater degree, in the former than the latter. Mr. KROM adopts steel rolls in the place of stamps for crushing the ore, and claims an enormous advantage in the following particulars :

1. In the granular condition in which they leave the crushed product.
2. In the durability of the machinery.
3. In the rapidity with which the work is performed.

A pamphlet from which we extract the particulars given in this article, and which contains, in addition, a vast amount of valuable information on the subject of ore crushing and dressing, illustrates, with details, the various parts of the machinery employed in this system of concentration, and to this we must refer for the fuller particulars that our space does not allow of now giving. The engravings from full working drawings, which we publish, show so clearly the arrangement of the rolls, screens, and classifiers, as to render any further description of the arrangement quite superfluous.

The results actually obtained in practice at several of the Western works that have adopted this system, are highly satisfactory, and merit the careful attention of all who are engaged in similar work. The enormous saving in the ore claimed to be effected by the dry system of concentration, as perfected by Mr. KROM, makes this subject one of the greatest practical importance, and we commend a perusal of Mr. KROM's pamphlet "to all whom it may concern."

THE UNION COAL MINING COMPANY'S MINERS OF LA SALLE, Ill., have resumed work on a basis of 95 cents per ton for Winter wages. The Union Company is one of the most important in this vicinity.

NOTES.

WORKMEN'S HOUSES IN GERMANY.—How cheaply men may be fed and lodged—well fed and lodged too—may be seen from a statement in a recent number of the German *Mining Annals*. That authority states that the proprietors of most of the mines in the districts of Dortmund, Bonn, and Halle, have been at considerable expense in providing, for the use of workman coming from a distance, sleeping houses and canteens. Nearly all these buildings have been erected upon the model of similar establishments belonging to the State at Saarbrück and elsewhere. The workmen are lodged in them and are provided with food from the Saturday till the Monday, and many of the unmarried men take up their residence in them altogether. These establishments have accommodation for from 50 to 300 persons each, and, as a general rule, the proprietors let them at a trifling rental to a contractor who is bound to lodge the unmarried men for a moderate sum and to afford them facilities for cooking their meals in the house. The price for lodging and food varies from 5d. to 1s. 3d. a day, but is rather more in Westphalia, where the workman gets coffee twice a day and meat once. Lights and firing are in nearly every case supplied gratis by the proprietors of the mine, though there are a few places where the workman pays 3s. a month for bed, lights, and firing. The dormitories have from six to ten beds, and the workmen are provided with bedding and linen. At the end of last year the district of Dortmund alone possessed twenty-eight large and seven small sleeping houses, with canteens attached, capable of receiving 4,800 lodgers. Several of these houses contain reading rooms, libraries, lecture halls, etc., and in a few of them are to be found baths, to which the occupants have free access. One of the best is at Silberau, near Ems, standing upon 2,500 square feet of ground, and large enough to lodge 200 workmen in dormitories, with from three to seven beds in each. The refreshment room on the ground floor is constructed to hold 300 people, and all the rooms are heated in Winter by hot water stoves. This building cost £3,500, or at the rate of £22 10s. for each lodger.

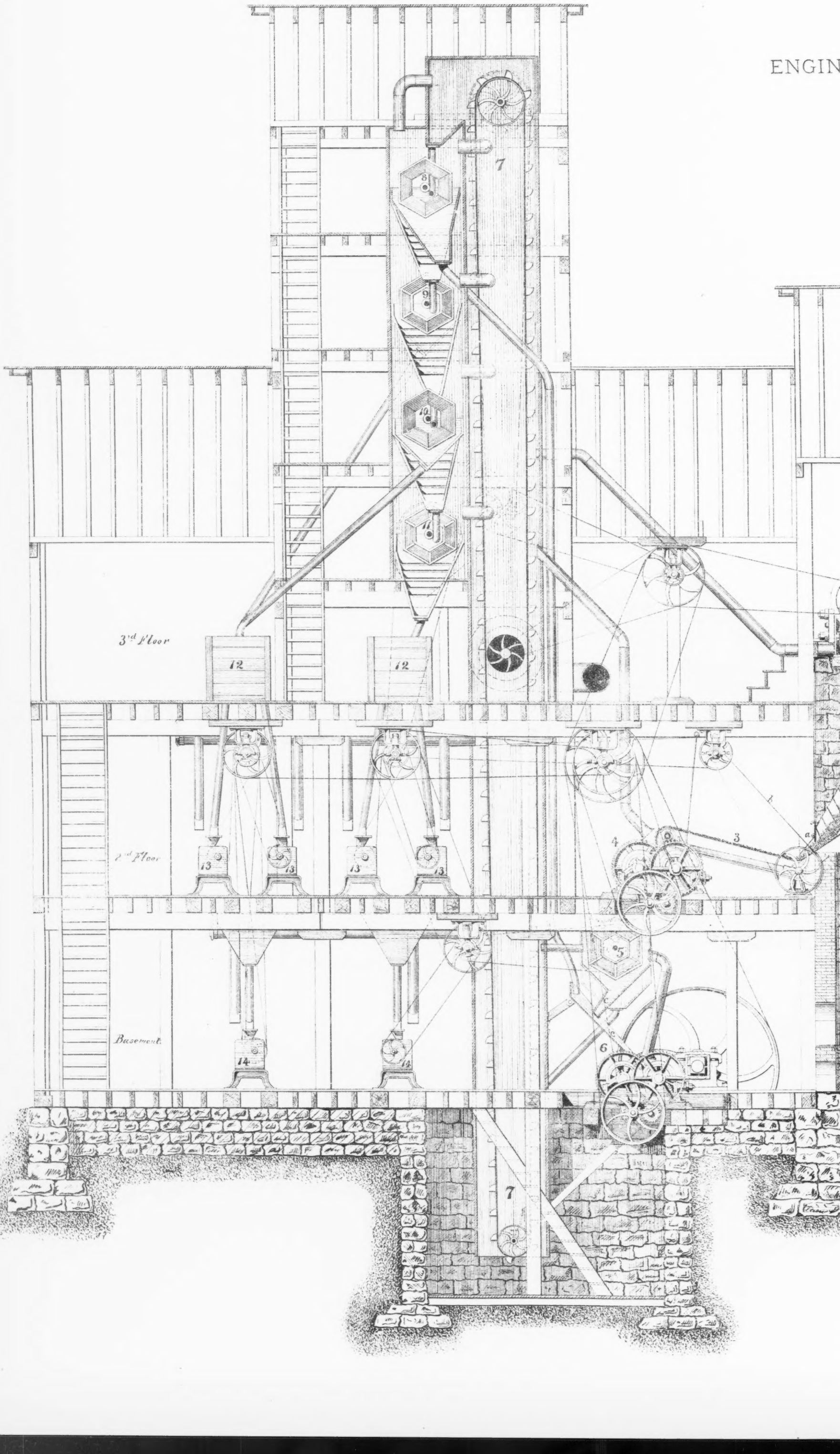
REVIEW OF THE PETROLEUM TRADE.—We find, at the close of the month of September, a greater number of drilling wells, than at any previous period since the discovery of petroleum. No less than 511 wells actually drilling, besides 382 rigs completed, and in various stages of completion, nearly all of which will be put in readiness to swing the drill during the present month, and will, probably, be reported as drilling wells in our next report, together with many that are now drilling, which will not be completed during the month of October ; consequently, we may look for no decrease in the drilling department in the month of October. The wells completed in September were 209 ; their daily average production was only 11 3-10 bbls. per well, which is a lower average than at any previous month, showing that the territory is becoming rapidly exhausted by the constant drain of the wells, which are daily increasing in number ; and as no new or fresh territory appears to be opening up, we may look for a decrease in the production before the year ends, especially when the cold rough season sets in to impede operations. The daily production we find to be 25,020 bbls., which is an increase of 787 bbls. An error in our August report was discovered after going to press, in the Bradford District, of 300 bbls. daily, being that amount less than the actual production of the district for that month We now correct the error, which will make the actual increase in all the districts 487 bbls., 158 of which is in the Bradford District, 216 bbls. in the lower oil fields, and the balance in the Creek districts. The stock held in the producing region is 2,930,456 bbls., against 3,304,405 bbls. in August, making a decrease in the stock of 373,949 bbls. for the month. The shipment out of the region of production was 1,154,549 bbls. in the month of September, being less than the shipments in August, 48,853 bbls., and larger than in any previous month except August. The home market for crude, delivered free on board the cars at Titusville, Oil City, and Parker's, ranged from $3.85 to $4.05 during the month. The market, on the first day of the month, was firm, at $3.85 and $3.90, and continued steady and somewhat animated, until the commencement of the second week, when it suddenly advanced to $4 20, very soon breaking down to $3.85 and $3.90, with slight variations to the close of the month.—*Stowell's Petroleum Reporter.*

NEW SCALE OF ORE PRICES AT DENVER.—The revised schedule of rates at Georgetown gives considerable satisfaction to miners. Up to date of writing (September 30th) it has not resulted in any marked increase in the quantity of ore offered, but this is expected to occur shortly. For some time past the ore supply has been small, owing to the fact that all who could afford to do so were holding back for higher prices. There is therefore considerable mineral on hand, which may be expected to come down to the mills in a "rush." As a matter of interest we have compared the scale of prices as they are now, and as they were under the "Combination" which was broken a couple of weeks since. The following table shows the comparison :

Ounces per Ton.	Price paid per ounce.	
	"Combination" Scale. Silver, $1.18.	New Scale. Silver, $1.15.
50	20 cents.	35 cents.
100	62 "	70 "
125	72 "	75 "
150	79 "	81 "
200	86 "	86 "
250	89 "	91 "
300	92 "	93 "
400	96 "	97 "
500	100 "	100 "
600	101 "	101 "
700	102 "	102 "
800	103 "	103 "
900	104 "	104 "
1,000	105 "	105 "

It would seem, on examining the above table, that the advance was after all confined almost entirely to low grade ores. At 200 ounces the old and new prices coin-

ENGIN


3rd Floor
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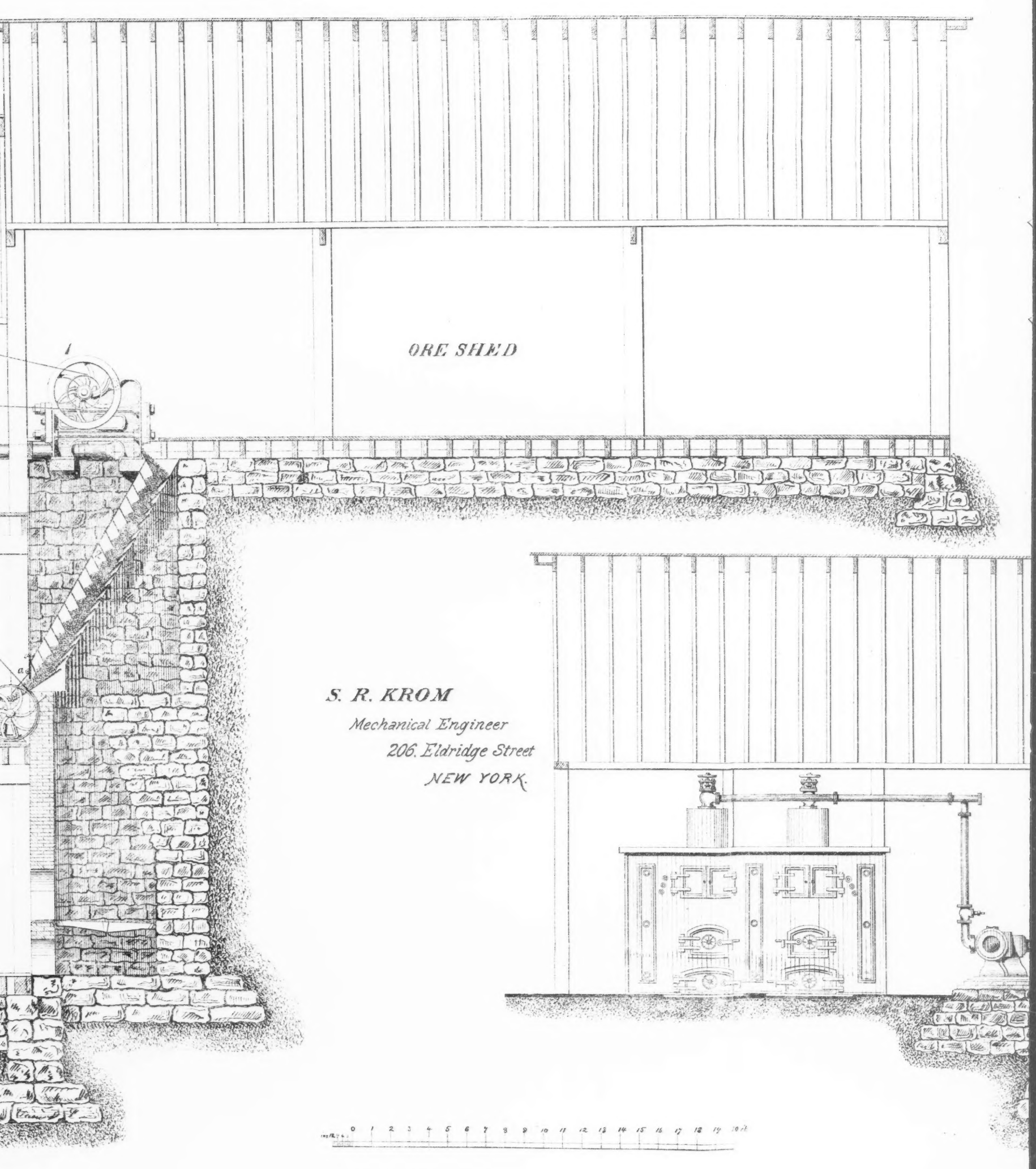
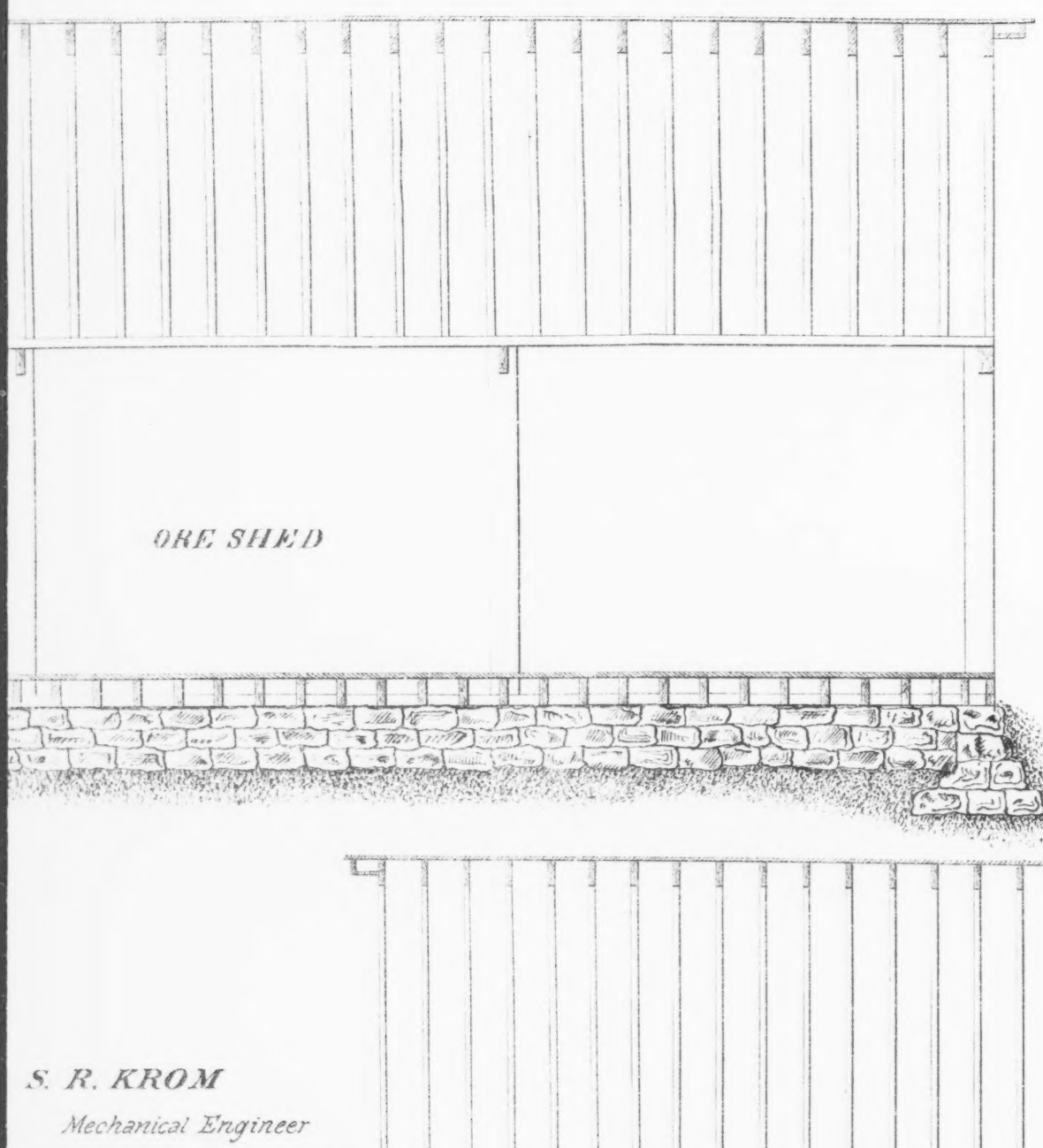
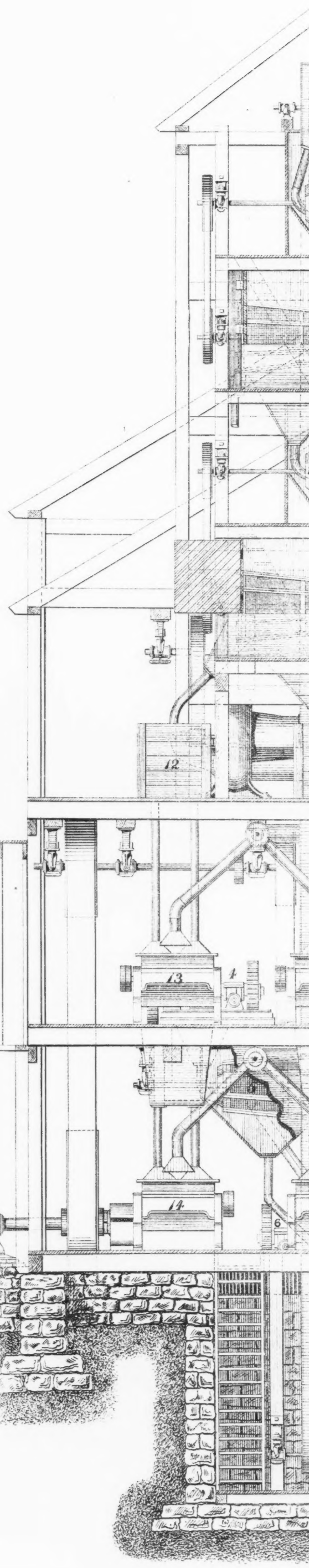


KROM'S SYSTEM OF ORE CONCENTRATION.





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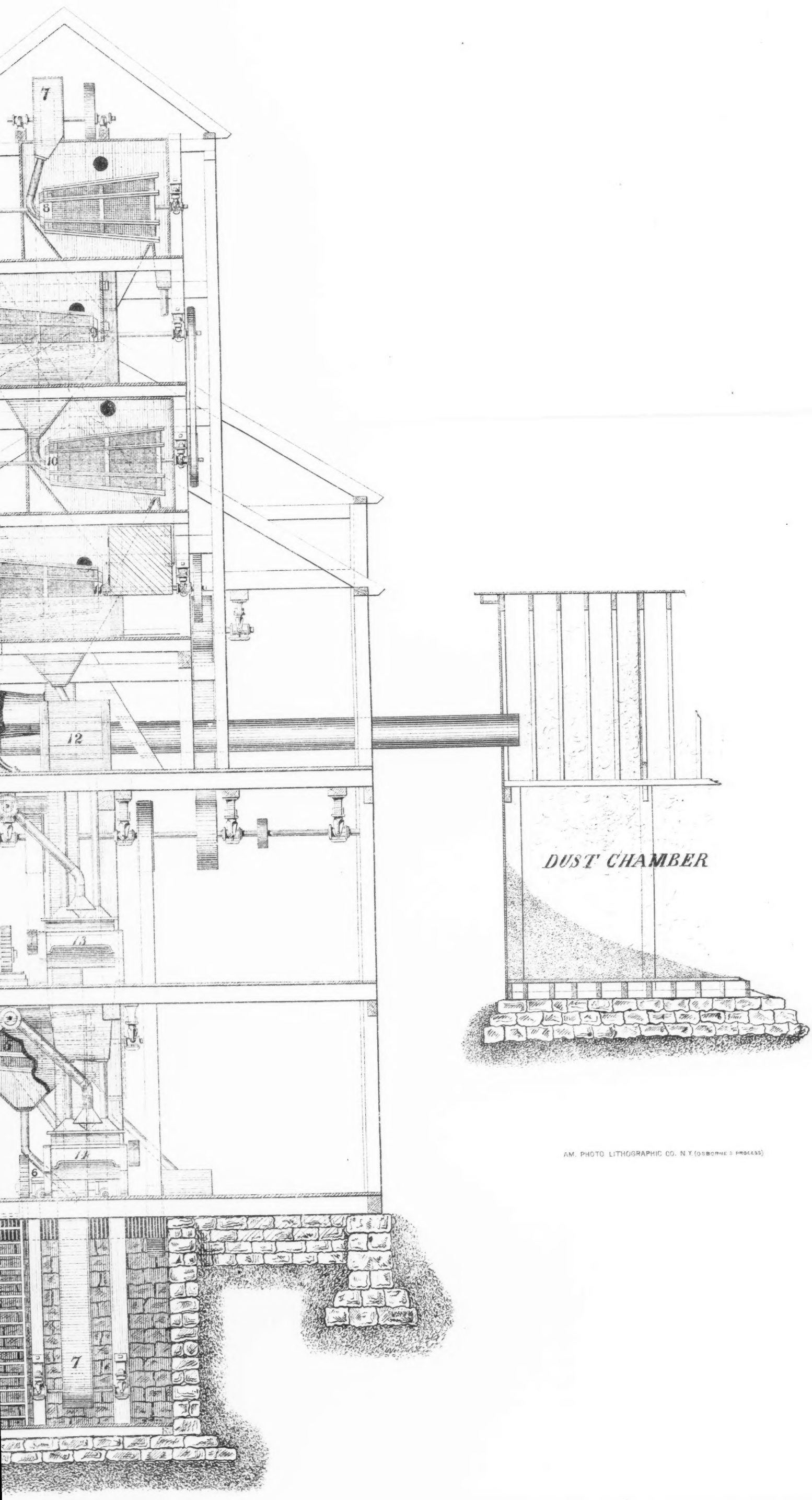
NEW YORK.

YSTEM OF ORE CONCENTRATION.



AM. PHOTO LITHOGRAPHIC CO. N.Y. (OSBORNE'S PROCESS)

cide; from that up to 500 ounces there is a very slight difference in favor of the new scale, but beyond that there is no change for the better whatever. Looking at the schedule from another point, however, the advance appears more evident. In the first the standard of silver is placed at $1.18 per ounce, and in the second at $1.15. This corresponds to a difference of 3 cents per ounce on every rate, in favor of the miner. To-day silver stands exactly at the figures of the basis $1.15. A five ton lot of 100 ounce ore will therefore bring $350 now, against $295, as per combination rates—a difference of $55. We think now that prices are nearly as good as they should be. Taking the case just given of a five ton lot of 500 ounce ore, its value would be as follows:

Five hundred ounces at $1.15	$575 00
Premium on gold	57 50
	$632 50
Price paid	350 00
	$282 50
Loss at 15 per cent	94 87
	$187 63
Cost of reducing at $35 per ton	175 00
Profit on five tons	$12 63

This is the mill-man's side of the story, and it does look rather meager. But the facts are that none but badly arranged mills make a loss of 15 per cent., and in but few is the cost of reduction over $20 per ton. In the Boston and Colorado Works the loss is seldom over 6 per cent. and often but 4 per cent., and the cost from $12 to $18 per ton. Taking the highest figures in both cases, the balance for profit in the case taken rises to $154, or $30.80 per ton, which is a fair and just figure after deducting freight and commissions.—*Mining Review*, October 7.

MINING NOTES.

THE GREGORY IRON MINES, near Topton, Berks County, Pa., have had a new slope sunk, and work will soon be resumed. The ore has improved very much, and is recommended very highly for making Bessemer steel iron.

CALIFORNIA COAL MINERS STRIKE.—The coal miners of Nortonville and Summerville offered to compromise with the mine owners on a reduction of 12½ cents per yard, but their offer was declined and work continues at a standstill.—*Visalia Delta*, Oct. 17th.

THE DECLINE OF THE PANAMINT, CALIFORNIA, MINING DISTRICT.—A gentleman just in from Panamint says that camp is about petered out. The Company have already spent over $1,000 000 in their efforts to find good paying rock, but as yet have been unsuccessful. They have now employed about twenty-five men, who are engaged in prospecting. The town is entirely deserted and is likely to remain so.—San Bernardino *Argus*, Oct. 12.

GOLDEN (COLORADO) COAL MINES are now turning out a fine lot of coal daily, and of good quality. The mines are in nice working condition. There are now, employed regularly, nineteen men, with three teams, to do the hauling. These mines are now supplying this market, and loading several cars per day for Black Hawk. They have a solid 7-feet vein of coal, and it is continually improving in quality. A new shaft-house is now being erected over the mine, in preparation for Winter.—Colorado *Transcript*, Oct. 18.

BRITISH COLUMBIA GOLD DISCOVERY.—A party arrived here on Sunday last and report having discovered gold diggings in a gulch called Deception Gulch about two miles long which connects with Sooke River about half way between Leech River and Sooke Lake. In three or four days with a rocker they washed up about $60. The gold is coarse and very pretty, some of the pieces weighing as much as three dollars and a half. The prospectors left here on the 8th ultimo and are confident they have discovered remunerative diggings. They have taken out licenses and recorded claims with the extra ground allowed for a discovery claim.—*British Colonist*, Oct. 11th.

THE SOUTHERN CALIFORNIA OIL FIELDS.—It seems no longer open to doubt that we have an oil-bearing belt over a wide stretch of territory running through Ventura County. Several wells have already been sunk in the vicinity of Andrew's Station in the San Fernando district, and are supplying from 10 to 20 barrels per day each. All these wells are yet but of shallow depth, and the quantity and quality of the oil may be expected to improve on the lower levels. But even these wells will produce from seventy to seventy-five per cent. of refined oil. In the Santa Paula district, adjoining the Sespe district, ADAMS & THAYER, who own 47,000 acres of land have put down several wells, and only last week struck a flow of fourteen barrels per day at a depth of 104 feet. They also have a refinery, and the oil made is of an excellent quality and burns as well as that in Pennsylvania. On the favorable report of our correspondent, the California Crystal Oil Company has been incorporated with a capital of $1,000,000.—*Journal of Commerce*, October 18.

CANADA.—*The Canada Copper and Sulphur Company* (limited).—This company operates three mines in the Eastern Townships, viz.: the Hartford, and Sherbrooke, in the township of Ascot, and the Acton, County of Bagot. The value of the monthly products averages from $18,000 to $20,000. The operations have not been carried on hitherto to much profit, although they have passed under the direction of three different general managers within as many years. The Hartford Mine produces from 1,500 to 2,000 tons of four and a-half per cent. ore a month. The question is how to manipulate these ores to a profit. The Henderson process, which is employed, has met with well-merited success in England, but it is found to be unsuited to the conditions existing here, and we hope that the company will be able to introduce such improvements in the treatment of the ore as will bring the cost within more satisfactory limits. By accomplishing this, and getting rid of a most expensive and unnecessary staff—the general weakness of English companies when operating abroad—they will earn the thanks of the stockholders, and also of all those who are interested in the judicious development of the mineral resources of the Dominion.—*Monetary Times*, Oct. 13.

CALIFORNIA.—*The Minietta Belle Silver Mine* is situated in Lee District, Inyo County, California, and adjoins the Modoc, a mine well and favorably known in this market. It is now being worked by four different shafts, from all of which ore is being extracted at the rate of about 30 tons per day. The main shaft has been sunk to a depth of two hundred feet, at which point a large body of ore has been cut which is heavily charged with manganese, iron, and carbonate of lead, assaying average samples upward of $100 per ton. Drifts are now being driven north and south on this vein at this level, and they are now in over 40 feet each way in a solid map of ore, with a well-defined porphyrated wall, smooth as glass, and standing almost perpendicular. The ore bodies at all points are looking well, and run from 8 feet to 45 feet in width. The four dumps now contain about 1,800 tons of ore, nearly all of which is of a free milling character. The Minietta Belle has now levied it first assessment of 25 cents per share. All the expenses of working the property up to this time have been paid by the sale of working capital stock, which was sold for $2 per share. This is now exhausted, and an assessment was rendered imperative to bring in water from the company's springs in Snow's Cañon, distant six miles, and pay the running expenses of the mine until their mill can be started up, which will be in about ten weeks. The mill will consist of ten stamps, and will be complete in every respect.—*Stock Report*, Oct. 13.

The Lamphear Gold Mine is located about a mile and a half from Mokelumne Hill The main shaft has reached a depth of one hundred and thirty feet. The ledge deflects so much from the plane of the incline of the shaft that no quartz is visible in the bottom, but drilling across to the hanging wall determines the presence of a wide lode of splendid ore. Sinking is being pushed energetically, and will be continued until the depth of two hundred feet is reached. Rock is being stoped from the 100-feet south level, at a distance of eighty feet from the shaft. The ore mined is of a fair quality, the ledge showing from three to five feet in width. We are informed that a force of hands will be put at work in the 100-feet north level, early next week, with a view to increasing the producing capacity of the mine to its maximum. The pumping and hoisting machinery works splendidly, and all the appendages of the mine are first class.—*Calaveras Chronicle*, Oct. 14.

NEVADA.—*The Mills of the California and Consolidated Virginia Mining Companies.*—The battery of the Consolidated mill started up yesterday, and the new pan mill this morning. Everything worked to perfection from the start. The mills now running on bonanza ore are as follows:

Mill.	Ore.	Stamps.	Pans.	Tons daily.
California	California	60	44	282
Con. Virginia	Con. Virginia	60	36	275
Mariposa	California	12	6	43
Sacramento	California	20	5	51
Occidental	California	20	6	54
Bacon	Con. Virginia	20	12	57
Trench	Con. Virginia	20	13	71
Brunswick	Con. Virginia	56	26	100
Morgan	California	40	13	85
Totals		308	161	1,078

The daily production of the Consolidated Virginia Mine will be increased at once by 250 tons, making the daily yield 650 tons. This will bring the daily yield of the bonanza mines up to 1,150 tons, 500 from the California, and the balance from the Consolidated Virginia. By referring to our table, it will be seen that the average daily milling capacity is 1,078 tons. It will not vary much from this, nor can it be increased. This would leave a surplus of 72 tons a day, which will, probably, be deposited at the different mills, in order that a full supply may be on hand before the snow flies. The monthly production of Consolidated Virginia will be 20,000 tons hereafter, which, at only $75 per ton, would return $1,500,000. But the ore averages over $100 per ton. And so with the California, with its monthly production of 15,000 tons, averaging over $100 per ton, and returning more than enough to pay the running expenses and dividend. The new mill has 36 amalgamating pans, 4 sulphuret pans, and 2 clean-up pans. The engine that runs the machinery is what is known as a compound condensing engine of 800-horse power. The initial cylinder is 24 by 48 inches; the expansion cylinder is 48 by 48 inches, and 4-foot stroke. Fifty men are employed in the mill. The total cost of the structure and machinery was about $175,000. Thirty thousand pounds of quicksilver are lost from the California pan mill monthly, and it is estimated that not less than 20,000 pounds will be lost monthly from the Consolidated mill.—Virginia *Chronicle*, Oct. 10th.

STATISTICS OF COAL PRODUCTION.

This is the only Report published that gives full and accurate returns of the production of our Anthracite mines.

Comparative Statement for the week ending Oct. 21.

Tons of 2,240 lb.	1876. Week.	1876. Year.*	1875. Week.	1875. Year.*
Wyoming Region.				
D. and H. Canal Co.	53,807	1,525,302	64,969	2,463,832
D. L. and W. RR. Co.	70,195	1,381,425	61,705	2,465,521
Penn. Coal Co	28,114	821,615	30,548	1,103,248
L. V. RR. Co.	17,964	769,360	16,387	755,221
P. and N. Y. RR. Co	760	18,249	827	81,804
C. RR. of N. J	41,315	1,036,466	46,628	1,089,647
Penn. Canal	15,896	331,313	13,752	238,688
	228,041	5,883,730	234,816	8,197,961
Lehigh Region.				
L. V. RR. Co	91,287	2,092,420	91,142	1,562,370
C. RR. of N. J	43,422	1,089,886	37,959	538,619
D. H. and W. B. RR.	—	32,324	2,117	65,697
	134,709	3,214,630	131,218	2,166,686
Schuylkill Region.				
P. and R. R. RR. Co.	170,818	3,679,314	177,932	3,615,533
Shamokin & Lykens Val.	28,974	749,142	27,876	994,590
	199,792	4,428,456	205,808	4,610,123
Sullivan Region.				
Sul. and Erie RR. Co.	446	28,109	647	7,139
Total	562,988	13,554,925	572,489	14,981,909
Increase	—	—	—	—
Decrease	9,501	1,426,984	—	—

* Year beginning January 1st.

The above table does not include the amount of coal consumed and sold at the mines, which is about five per cent. of the whole production.

The decrease of shipments of Cumberland Coal over the Cumberland Branch, and Cumberland and Piedmont Railroads amounts to 459,749 tons, as compared with the corresponding period in 1875.

Belvidere Delaware RR. report.	Week.	Year 1876.	Year 1875.
Receipts of coal at Coal Port (Trenton)	12,111	226,796	140,769
" " " South Amboy	8,108	349,158	196,413
Shipments at Coal Port (Trenton).	9,706	221,585	137,237
" South Amboy	11,996	386,238	268,000

Perth Amboy business:	Tons.
Received for the week	17,709
Shipped for the week	26,751
On hand Oct. 21	49,907

Receipts of Coal at Boston, for the week ending Oct. 20, and years from Sept. 1, 1875 and 1876.

From	Week. Tons.	Previously. 1876. Tons.	1875. Tons.
Alexandria and Georgetown	—	9,352	26,022
Philadelphia	10,645	127,352	158,859
Baltimore	2,037	24,698	32,190
Other places	3,884	53,995	70,562
Great Britain	201	620	704
Nova Scotia	892	6,971	8,647

The Production of Bituminous Coal for the week ending Oct. 21, was as follows:

Tons of 2,000 lb., except where otherwise designated.

	Week. Tons.	Year. Tons.
Cumberland Region, Md.		
Tons of 2,240 lb.	44,564	1,452,358
Barclay Region, Pa.		
Barclay RR., tons of 2240 lb	8,602	271,896
Broad Top Region, Pa.		
Huntingdon and Broad Top RR	3,476	124,607
*East Broad Top	920	52,974
Clearfield Region, Pa.		
*Snow Shoe	973	40,297
*Tyrone and Clearfield	17,899	884,762
Allegheny Region, Pa.		
*Pennsylvania RR	3,284	160,431
Pittsburgh Region, Pa.		
*West Penn. RR	3,739	156,383
*Southwest Penn. RR	992	44,751
*Penn. & Westmoreland gas coal, Pa. RR.	21,117	641,014
*Pennsylvania RR	9,243	230,714

* For the week ending Oct. 7.

The Production of Coke for the week ending Oct. 7.

Tons of 2000 lb.	Week.	Year.
West Penn. RR	931	36,751
Southwest Penn. RR	9,812	403,104
Penn. & Westmoreland Region, Penn. RR.	1,655	41,587
Pittsburgh, Penn. RR	1,747	123,692
Total	14,145	605,134

COAL TRADE REVIEW.

NEW YORK, FRIDAY EVENING, Oct. 27, 1876

Anthracite.

THERE has been considerable activity at the shipping ports, and deliveries, as a rule, not prompt, especially in chestnut and stove sizes. There has been but very little coal disposed of at private sale, buyers having awaited the results of the auction sales announced in our last.

The following were the quantities of coal offered at auction by the Delaware, Lackawanna and Western Railroad Company, on Wednesday, the 25th inst., and

the average prices received as compared with those obtained by the same company Sept. 27:

	Tons.	Oct. 25.	Sept. 27.
Steamer	10,000	$2.96½	$2.90½
Grate	25,000	2 82½	2.97½
Egg	20,000	2 92½	3.18¼
Stove	40,000	3.85	3.96½
Chestnut	5,000	3.81¼	3 28
	100,000		

It will be observed that steamer coal shows an advance of 6 cents per ton, and chestnut 53¼ cents. There had been a steadily increasing demand for chestnut coal, which, coupled with the small quantity offered (5,000 tons as against 12,000 tons Sept. 27), accounts for the advance in this particular size.

The Delaware and Hudson Canal Company sold at auction, yesterday, the following quantities of coal, and the annexed are the average prices received, compared with those obtained September 28:

	Tons.	Oct. 26.	Sept. 28.
Steamer	5,000	$3 03	$3 13
Grate	20,000	3 07	3 20
Egg	25,000	3 00	2 28½
Stove	50,000	4 04	4 10
	100,000		

The above shows that a decline, ranging from 5c. to 28¼c., took place at the sale of this month, yet it was a matter of almost universal comment that even these were "bolstered" prices. The fact that over 43,000, out of the 100,000 tons sold, went to one concern, closely allied to the selling company, and that Delaware and Hudson coal, purchased at the last auction sale, has since been freely offered at prices below those paid for it—supposing the auction sale to have been *bona fide*—undoubtedly lent strength and consistency to this suspicion, and affected in a very injurious manner the sale itself. Purchasers are much too well informed to be deceived by any such transparent *ruse*, and it is scarcely credible that men as upright, sagacious, and experienced as the managers of this, or of the other large companies, would descend to the practice of the mock auction in carrying on an important and honorable business. Such a course would be not only wholly dishonorable, but it would be silly and ineffectual—arguments against it at least as potent with those who could be guilty of it, as the questionable morality of the act. From what we have said it is evident we are unwilling to credit the insinuation which attributes so dishonorable a course to honorable gentlemen, but "Cæsar's wife must be above suspicion," and we trust that even the slight circumstances which have been cited as confirming the unworthy thought may not again appear.

All large purchasers of coal are quite well informed as to the actual condition of the coal trade—in other words, they read the ENGINEERING AND MINING JOURNAL—and any attempt to "bolster" prices in an auction sale, at once produces a panic. Those who propose buying, as soon as they see the first indication of "Peter Funk," as they term this policy, suspect a greater weakness than actually exists, and by withholding their bids, produce the very condition of things that it is sought to avoid. "Honesty is the best policy," in the coal trade, as in all others, and those who practice it, even though at first it may appear a disadvantage, invariably succeed in the end, and reap the reward in the confidence of the public.

Most of the coal was sold to the trade. But little of the coal disposed of went direct to consumers, or even to retailers. Much the larger part was taken by the wholesale trade, and must realize one or two profits before reaching the consumer; yet the consumer can buy coal from most of the companies on private negotiation, at prices below those nominally obtained at this sale. We trust those whom it may concern will be able to *ward* off the unworthy insinuation which these apparently *crook*-ed proceedings have made *more* and *more* difficult to refute.

There has been a very large quantity of coal disposed of since the Combination was dissolved; more, in fact, than the previous condition of the trade would warrant, and the only conclusion that can be drawn is, that buyers, considering coal cheap, have anticipated, very largely, their future wants. It now looks as though the greater portion of the trade would be fully supplied by the middle of next month, leaving in the market only some of the shrewdest buyers, who delay making purchases as much as possible, and use every effort to depress prices. What their efforts will result in remains to be seen, but the condition of the trade certainly encourages them.

Anthracite coal is now being produced at the rate of fully 30,000,000 tons per year, or at a rate twice as great as ruled from January 1st to the breaking of the Combination

The Lehigh Coal Exchange has adopted the following prices, f.o.b., at the New York shipping ports, for Nov.:

Lump	$4 00	Stove	$4 00
Broken	3 60	Chestnut	3 60
Egg	3 60	Pea	2 75

25c. additional, alongside, New York; 20c. alongside, New Brunswick; and for delivery at Newark, by Morris Canal, Mauch Chunk prices, with expenses from that place added. The only change made was in chestnut coal, which was advanced 30c.

From present indications, the Pennsylvania Coal Company will make no change in its prices, excepting for chestnut coal, which will be advanced. Other companies appear to be undecided as to what they shall do.

Bituminous.

The trade in these coals is as uninteresting as at any time this year. A steady business in small lots and to a limited extent continues to be done at prices quite unremunerative. The Cumberland production last week was but about 4,000 tons short of the corresponding week of last year, which, considering the great drawbacks under which that trade is laboring, speaks well for the qualities of the coal. The weekly production of Clearfield coal is less than earlier in the year, and less than a year ago.

The Chesapeake and Ohio Coal Agency reports a very fair demand for its block coal, while its steam and gas coals are being freely distributed for trial with the expectation of introducing them quite largely in next year's business. The coal business of the Chesapeake and Ohio Railroad will probably show an increase of fully 50 per cent. this year as compared with 1875.

The coal from the Midlothian Mine, Richmond, Va., is obtaining a foothold in the North-eastern market. We hear of several large cargoes going East, and learn that at the wire works in Worcester, Mass., as elsewhere, it has given great satisfaction.

Coal Trade of Philadelphia.

PHILADELPHIA, Oct. 26, 1876.

From our Special Correspondent.

THE local trade is still active, and will likely remain so for a few weeks longer. Small stove and chestnut, particularly, are in very good demand.

The auction sales have a very marked effect on the trade at tide water—unsettling it considerably as might be expected. The results of such sales cannot be very gratifying to the companies ordering them, and ought to convince them that the almost universal opinion that this mode of disposing of coal is most disastrous, has some foundation. Indeed if the parties to it were trying to see how little they can obtain for their coal after having tried how far up they could go, no better plan could be devised than the one adopted. This going from one extreme to another, does not speak well for the wisdom of those who have in their charge such an important interest.

Vessels are in greater abundance than they have been. Large ones are in excess of the demand, but those of light draft quite scarce. The last are of the kind which are scarce here at all times, which drives from this port a good deal of the trade formerly held here. Had the Reading Company spent in controlling light draft schooners, one-half of the money they have invested in their steam collieries the investment would have been of much more advantage to them and to those doing business over their road. Rates for light draft vessels are from $2 to $2.10 to Boston, while concessions are made below $2 for large vessels.

Wholesale Prices of Anthracite Coal for Oct., f.o.b. at the Tide Water Shipping Ports per ton of 2240 lb.

	Lump.	Steamer.	Grate.	Egg.	Stove.	Chestnut.
Wyoming Coals.						
‡Lackawanna and Scranton at Hoboken and Rondout	3 25	3 30	3 40	3 50	4 25	3 75
Pittston at Newburg	3 10	3 10	3 25	3 35	4 10	3 60
Wilkesbarre at Port Johnston	3 25	3 25	3 50	3 50	4 25	3 50
Plymouth, R. A.	....	....	3 50	3 50	4 30	3 50
Susque. Coal Co. at Amboy W.A.	3 25	3 25	3 50	3 50	4 00	3 30
Kingston at Hoboken	3 25	3 25	3 40	3 50	4 25	3 50
Lehigh Coals.						
Old Company at Port Johnston	4 00	....	3 60	3 60	4 00	3 30
Old Company's Room Run "	4 00	....	3 60	3 60	4 00	3 30
Sugar Loaf, Hobok. & Amb. "	4 00	....	3 60	3 60	4 00	3 30
Lehigh Coal Exchange "	4 00	....	3 60	3 60	4 00	3 30
Honey Brook Lehigh	4 00	....	3 60	3 60	4 00	3 30
Beaver Meadow at South Amboy	4 00	....	3 60	3 60	4 00	3 30
Schuylkill Coals at Philadelphia.						
Schuylkill white ash	3 20	3 20	3 20	3 20	3 70	3 20
Schuylkill red ash	....	....	....	3 30	3 80	3 20
Lorberry	....	....	4 20	4 20	4 20	3 25
Lykens Valley	....	....	4 70	4 70	4 70	3 70
North Franklin red ash	....	....	4 20	4 20	4 20	3 25

‡ Boats towed by the D. & H. C. Co. at its expense to and from New York harbor.

Per ton.

Freight from Hoboken and Weehawken to New York.... 45c.
" " Elizabethport & Port Johnston to N. York. 45c.
" " South Amboy to New York..... 45c.

Freight by the boats of the companies from Hoboken, Port Johnston, Weehawken, Rondout, South Amboy and Perth Amboy to New York City and vicinity 50c.

Freight by the Pennsylvania Coal Company's boats from Newburg to New York 65c.

Lackawanna coal delivered to carts in New York or Brooklyn, 50 cents per ton additional.

Wholesale Prices of Bituminous Coal.

Domestic Gas Coals.

Per ton of 2240 lb.	At the Shipping Ports.	Alongside in New York.
Westmoreland and Penn. at Greenwich, Philadelphia	$4 70	$6 00
" " at S. Amboy	5 50	6 00
Red Bank Cannel Pa. at Philadelphia	8 00	8 50
" " South Amboy	8 50	....
" Orrel	6 00	6 50
Youghiogheny, Waverly Co., at Balt	4 25	5 65
Despard, West Va.	4 50	6 00
Murphy Run, West Va., at Baltimore	4 50	5 85
Fairmount, West Va., " "	4 40	5 70
Newburgh Orrel, Md. " "	4 50	6 00
Cannelton Cannel, W. Va.	....	10 00
" Splint, " at Richmond.	5 50	7 00
" Gas Coal at Richmond.	4 15	5 65
Peytona Cannel W. Va at Richmond	....	10 00
Manufacturing and Steam Coals.		
Cumberland at Georgetown and Alexandria, Va.	3 50@3 75	4 90
Cumberland, at Baltimore	3 65@3 80	5 10
Clearfield f.o.b. Canton, Baltimore	3 40@3 65	5 25

Pennsylvania Semi-Bituminous Coals.

At the mines, per 2,000 lb., 90c. f.o.b, at Greenwich, Phila., for Eastern and Foreign shipments, per 2,240 lb. $3 25@340 for Sound ports, 3 50@3 65, through Delaware and Raritan Canal, for points on Hudson River, $3 80 f.o.b., at South Amboy, N.J., per 2,240 lb., $4 5c@4 70. Discharged, in New York, per 2,240 lb., $5 00@5 25.

Foreign Gas Coals.

	Sterling.	Am. cur'cy,
Newcastle, at Newcastle-on-Tyne	9/6@11/	6 50@ 7 00
Liverpool House Orrel, at Liverpool	26/	13 00
Ince Hall Cannel "	42/	18 00
" Gas Cannel "	28/	13@14
Scotch Gas Cannel, at Glasgow, nominal,	25/	7 50
	Gold.	
Block House, at Cow Bay, N. S	2 00	4 75
Caledonia, at Port Caledonia	1 50	4 25
Glace Bay, at Glace Bay	1 50	4 25
Lingan, at Lingan Bay	1 75	....
Sydney, International and Reserve mines, at Sydney	2 00	5 50
Pictou, Albion & Vale mines, at Pictou.	2 25	5 75

Retail Prices in New York.

Anthracite.

Per 2000 lb.	Grate and Egg.	Stove.	Chestnut.
Pittston coal, in yard	$4 20	$4 50	$3 80
Lackawanna coal, in yard	4 20	4 50	3 80
Wilkes-Barre, delivered	5 00	5 30	4 60
Lehigh & Locust Mountain, del'd	5 50	5 50	5 00
Schuylkill Red Ash, del'd	6 00	6 00	5 50

The Cost of delivery for Pittston and Lackawanna coal ranges from 40 cts. to $1 10 per ton, according to distance from the yard.

Bituminous.

Liverpool House Orrel, delivered, per ton of 2000 lb	$18 00
Liverpool House Cannel " " "	22 00
American " " "	13 00
Cannelton Block, or splint, " " "	10 00
American Orrel " " "	11@14
Red Bank Cannel " " "	10 00
Cumberland " " "	7 00

Baltimore, Md. Oct. 23, 1876.

Reported by our Special Correspondent.

ANTHRACITE.

Wholesale or Trade Prices per 2240 lb.

Wilkes-Barre "Lee" or "Diamond," Pittston and Plymouth. White ash.	In cars at depot.	By boats afloat.
Lump and steamboat	$3 85	$3 55
Broken	3 85	3 55
Egg	3 85	3 55
Stove	4 35	4 05
Nut	3 85	3 55
Shamokin. (red or white ash), and "Boston," free burning white ash,		
Egg	4 10	3 80
Stove	4 35	4 05
Lykens Valley, red ash,		
Egg and stove	5 35	5 05

From wharf or yard, wholesale, 50@75c. additional.
By retail, all kinds and sizes, per 2240 lb. $6 00@7 50

BITUMINOUS.

George's Creek, Cumberland f. o. b. at Locust Point	3 75@4 00
West Virginia Gas f. o. b. at Locust Point	4 50
Youghiogheny Gas, f. o. b. at Locust Point	4 50
Swanton	4 00

Boston. Oct. 21, 1876.

COAL is in sharp retail request, and the yard men have had a very busy week indeed. The Winter weather the first days of the week were suggestive of the necessities of the households for warmth, and buyers very generally seem to have rushed at the wharves in breathless impatience for prompt deliveries. There is also a quickened demand from the manufacturing districts; there is not an over supply of water, and mills that by the rains the first of the month would have been able to go on to water power are now back to steam, and anxious for prompt deliveries from the pockets of the car lots needed.

FREIGHTS continue very scarce and strong, quoting charters from New York, $1 60; Philadelphia, $2@2 10; Baltimore, $2; and Georgetown $2@2 25.—*Commercial Bulletin.*

Buffalo, N. Y. Oct. 22, 1876.

Reported by LEE & LOOMIS.

Deliv'red at	Elmira.	Ithaca.	Syracuse	Rochester.		Oswego
	Afloat.	Afloat.	Afloat.	Afloat	ret.del.	f.o.b.
Grate	$3 80	$3 05	$3 20	$3 90	$5 15	$4 15
Egg	3 80	3 15	3 30	4 00	5 25	4 25
Stove	4 20	3 65	3 80	4 50	5 75	4 75
Nut	3 95	3 40	3 55	4 25	5 50	4 50

Delivered at	Erie.	Buffalo.			
	f.o.b.	Afloat.	f.o.b.	ret.	del.
Grate	$4 65	$4 15	$4 65	$5	40
Egg	4 75	4 25	4 75	5	50
Stove	5 25	4 75	5 25	6	02
Nut	5 00	4 50	5 00	5	75

Chicago, Ill. Oct. 23, 1876.

Lackawanna Stove	$7 00
" Chestnut	7 00
" Grate and Egg	7 05
Erie and Brier Hill	5 25
Wilmington and Illinois	4 75@ 4 25
Blossburgh	7 50

Cincinnati, O. Oct. 23, 1876.

Reported by our Special Correspondent.

Prices of coal have an upward tendency, with a decidedly firmer tone to the market. We quote:

Per ton of 2000 lb.	Bush.	Ton.
Youghiogheny, or Pittsburgh, afloat	@8c.	—
Pomeroy coal "	@5c.	—
Kanawha " "	7½c.	—
Ohio River Coal "	5½c.	—
Cannel coal, according to quality "	@16c.	—
The following are the retail prices delivered		
Youghiogheny	10@11c.	—
Pomeroy	9c.	—
Cannel	@22c.	—
Kanawha	10c.	—
Anthracite, per ton		$9 00
Coke, at yard	10c.	—
Coke, hard and soft, delivered	— @9c.	—

Cleveland, O. Oct. 23, 1876.

Specially reported by Messrs. LAMBIE & BATES.

Per ton of 2000 lb. f. o. b. vessels.

WHOLESALE.

	For vessels,	On cars.
Youghiogheny Gas Coal	$4 10	$4 00
Cannel	4 25	4 15
Blossburgh	$5 00	$5 00
Briar Hill, Block Coal	3 50	3 25
Straitsville Coal Co., lower vein	2 90	2 90
" " " whole "	2 80	2 80
Hocking Valley	2 90	2 90
Massillon	2 90	3 00
Tuscarawas Valley	2 50	2 50
Columbiana	2 50	2 50

CLEVELAND COAL EXCHANGE PRICES UNTIL FURTHER NOTICE.

	1 to 10 tons.	10 tons upw'd.
Brier Hill lump	$4 25	$4 00
" " nut	3 75	3 50
Massillon and Mineral Ridge lump	4 00	3 75
" " " " nut	3 75	3 50
Straitsville Lower Vein, Hocking & Shawnee, l'p.	3 60	3 35
" " " " nut	3 40	3 15
Del Carbo lump	3 75	3 50
" " nut	3 50	3 25
Rich Hill lump	3 60	3 35
" " nut	3 25	3 00
Maple Hill lump	3 50	3 25
" " nut	3 25	3 00
Columbiana, lump	3 25	3 00
" nut	2 75	2 50
Lacka'a., Wilkesbarre and Pittston egg and grate,	6 25	6 05
" " " stove	6 75	6 50
" " " chestnut	6 50	6 25

Lehigh to be $1 25 per ton higher.

All sales to be strictly cash with order or C. O. D.

Indianapolis, Ind. Oct. 23, 1876.

Specially reported by Messrs. COBB & BRANHAM.

Wholesale on board cars, and retail delivered to consumers.

Per ton of 2000 lb., bushel of 70 lb.

BITUMINOUS.

White River, per ton	$2 50	Peytona cannel, per ton.	5 75
Brazil Block, "	2 50	Indiana Cannel	4 50
Highland, grate, "	2 25	Hocking Valley	4 25
Block coal, nut, per car	18 00	Youghiogheny	4 50
Highland " "	18 00	Blossburg (smithing)	6 50
Block Slack "	17 00	Piedmont "	6 50
		Gas coke, per bushel	10

ANTHRACITE (Lackawanna and Wilkes-Barre.)

Broken	$8 35	Nut	8 50
Egg	8 35	Stove	8 75

Lehigh Anthracite.

Broken	9 75	Nut	9 50
Egg	9 75	Stove	10 00

Retail, per bushel, delivered.

Sand Creek	15c.	Block Nut, steam	8
White River	13	" Slack, "	7
Brazil Block	14	Peytona Cannel	28
Highland grate	13	Virginia "	27
Block Nut, domestic use.	12	Youghiogheny	20
Highland Nut, " "	12	Blossburg	26
" " steam	8	Piedmont	26

GAS COKE (measured.)

Crushed	15c.	Lump	12c.

ANTHRACITE,

Wilkes-Barre and Lackawanna (all sizes)	$9 75 per ton.
Lehigh, retail	$11 50 per ton.

Louisville, Ky. Oct. 23, 1876.

Specially reported by Messrs. BYRNE & SPEED.

Please report our prices as follows:

WHOLESALE.

Pittsburg	6½c.	Pine Hill	—
Raymond City	6¾c.	Kentucky	7c.

RETAIL.

Pittsburgh	10c.	Peytona Cannel	18c.
Raymond City	10c.	Buckeye "	
Pine Hill	13c.	City-made Coke	8c.
Kentucky	9c.	Anth., per ton, $10 00 to 10 50	
Screened Pittsburgh per load			$3 50
Screened Raymond City			2 50
Pine Hill (Kentucky)			2 25
Cannel			4 50
City-made Coke			4 00

Milwaukee, Wis. Oct. 23, 1876.

Specially reported by Messrs. R. P. ELMORE & Co.

Trade is quiet. Our prices for coal are:

Retail price per ton of 2000 lb.

Lehigh Lump	$ 9 00	Briar Hill, select	$7 00
Lehigh Prepared	9 50	Blossburgh	7 00
Lackawanna (all sizes)	8 50	Cannel	8 00
Pittston	8 50	Pittsburgh	6 50
Scranton	8 50	Steam coal	5 50

New Orleans, La. Oct. 19, 1876.

Reported by C. A. MILTEBERGER & Co.

Pittsburg coal, wholesale, by boat-load, per bbl	27@28c.
" steamboats, per bbl	40c.
" to manufacturers	45c.
" shipments, per hhd	$5 25
Anthracite, wholesale, per ton	8@8.50
" retail, "	12@13
Virginia Cannel, per bbl	80c.
Scotch " "	80c.
Mt. Carbon, wholesale, per bbl	...
" " retail, "	50c.
St. Bernard wholesale, per bbl	25c.
" steamboat	35c.
" retail, "	45c.

Pittston, Pa. Oct. 23, 1876.

Pennsylvania Coal Company's Coal in yard, ton of 2000 lb.

Retail.

Lump, Egg and Stove	$2 25
Chestnut	2 00

Delivered, fifty cents per ton additional.

Richmond, Va. Oct. 23, 1876.

Specially reported by S. H. HAWES, Dealer in Coal.

Prices are now as follows:

Per ton of 2240 lb., f.o.b.

Kanawha Cannel	$9 00	New River Bituminous,	$4 00
" semi-Cannel	4 00	Clover Hill Coal	3 50
Coalburgh Splint	4 00	James River Bitum	3 30
Lewiston "	4 00	" " Carbonite,	5 00
Kanawha Gas coal	3 90		

San Francisco, Cal.

From the *Commercial Herald*, Oct. 19, 1876.

Imports from Jan. 1st to Oct. 16:

	tons.		tons.
Anthracite	10,571	Vancouver Island	79,803
Australian	100,215	Rocky Mountain	163
Coos Bay	31,111	Seattle	72,189
Cumberland	9,251	Bellingham Bay	16,395
English	64,803	Chili	2,076
Mt. Diablo	86,408		

The California Mt. Diablo mines are again producing, the miners having submitted to the 25 per cent. reduction in wages to correspond with the reduced prices of the product. The demand for Wallsend, West Hartley, and other house coals shows an improvement, and prices for cargoes to arrive are decidedly in favor of the seller. Imports for the week past include the following: Seattle, 1,325 tons per *Aureola;* Sydney 1,000 tons per *City of Glasgow;* Newcastle, England, 1,460 tons per *Edwin Reed;* Sydney per *Juliet*, 1,580 tons; Liverpool, 2,469 tons per *New York*. The bulk of the foregoing was purchased prior to arrival. The market at this date shows a rise of 25c. to 50c. per ton on cargoes of steam afloat and to arrive as compared with the lowest selling rates of the Summer. Our total receipts of all kinds for nine months of 1875 and 1876 are respectively; 396,473 and 452,762 tons, showing a net increase for 1876 of 56,289 tons. We quote Australian, $7.75@$8.25; English and Scotch steam, $7.75@8; Anthracite, $12@15; Cumberland, $14@16; Seattle $9; Coos Bay, $8. We note the following arrivals; *Ambrose*, Sydney, 980 tons; *Northern*, Adelaide, 580 tons; *Mary Low*, Glasgow, 1,200 tons, etc. *Bonanza* from Liverpool brought 1,531 tons, and *Rutlandshire* from Sydney 1,481 tons.

St. Louis. Oct. 23, 1876.

Reported by JAS. J. SYLVESTER, Secretary of the Anthracite Coal Association.

Retail prices, delivered.

ANTHRACITE.	per ton.
Lackawanna	$9 00@10 00
Wilkes-Barre	9 00@10 00
Schuylkill	9 00@10 00
Lehigh	11 00@12 00
BITUMINOUS.	
Blossburg	9 00
Pittsburg	4 50
Indiana Block	4 00
Big Meadow	3 00
Illinois Coals	2 50@3 00
Connellsville Coke	9 00

Toledo, Ohio. Oct. 22, 1876.

Specially reported by GOSLINE & BARBOUR.

We quote as follows for retail delivery:

Lackawanna lump	$6 75	Lehigh lump	$7 75
" egg	6 75	" egg	7 75
" stove	7 00	" stove	8 00
" chestnut	6 75	" chestnut	7 75
Soft Coal.			
Hocking lump	4 00	Brier Hill	5 75
" nut	4 00	Blossburg	8 00
Willow Bank lump	4 50	Cumberland	8 00
" " nut	4 00		

Montreal. Oct. 23, 1876.

Specially reported by Messrs. ROBERT C. ADAMS & Co.

Wholesale per ton of 2240 lb.

Scotch Steam	$4 25	Cape Breton Steam	$3 75
Pictou "	4 25	Newcastle Smiths	5 50

Anthracite at retail, per 2000 lb., delivered.

Egg	$6 25	Chestnut	6 25
Stove	6 75		

Hamilton, Ont. Oct. 23, 1876.

Specially reported by H. BARNARD, Dealer in Coal.

Grate	$5 75
Egg	5 75
Stove	6 00
Nut	5 75
Lehigh Lump	6 50
Smithing	6 00
Bituminous, retail	5 50
" steam	4 00
Coke	6 75

Rates of Transportation on Anthracite Coal to Tide Ports.

Our issue of the 16th ult. contains very full information on the above, and from which no change has occurred since that date.

Freights

Representing the latest actual charters up to Oct. 27, 1876.

Per ton of 2240 lb.

PORTS.	From Philadelphia.	From Baltimore.	From Georgetown.	From Elizabethport, Port Johnson, South Amboy, Hoboken and Weehawken.
Augusta, Me	....	....	....	....
Albany	....	....	....	....
Alexandria	....	....	....	....
Amesbury, Mass	....	....	....	1 75
Bangor, Me	....	3 00	....	1 50
Bath, Me	....	2 00	2 20	1 50
Baltimore	....	....	....	....
Boston, Mass	1 80@2 00	2 00@2 10	2 10	1 50
Bridgeport, Ct	1 15†	1 75	....	80
Bristol, R. I	1 60	....	....	1 00
Cambridgeport, Mass	2 00@2 10	....	....	1 50
Derby	....	....	....	....
Dighton "	....	....	....	....
East Cambridge	2 00@2 10	....	....	1 50
Fall River	1 60	1 80	1 90	1 00
Hackensack	1 12†	....	....	....
Hallowell, Me	....	....	....	....
Hartford	1 75@2 00	....	....	1 00
Hoboken	†95	....	1 55	45
Hudson	1 10	....	....	....
Jersey City	†95	....	1 55	45
Lynn, Mass	....	....	....	†1 50
Middletown	1 75@2 00	....	....	1 15
Mystic	....	....	....	....
Newark	†96	....	....	....
New Bedford	1 75	1 80	2 00	1 15
Newburyport	2 00	2 15	2 25	1 70
New Haven	1 10†	1 75	1 85	80
New London	1 60	1 75	1 90	80
Newport	1 60	....	....	1 10
New York	†95	1 55	1 60	45
Norfolk	....	....	75	75
Norwalk	1 10†	....	....	80
Norwich	1 60	....	....	1 00
Pawtucket	1 75	....	....	‡1 10
Philadelphia	....	....	....	....
Portland	2 00@2 15	2 00	2 20	1 35
Portsmouth, N. H	2 00@2 10	2 15	2 25	1 70
Providence	1 60	1 75	1 90	1 10
Poughkeepsie, N. Y	1 10†	....	....	....
Rockport	....	....	....	....
Saco	....	....	....	....
Sag Harbor	....	....	....	....
Salem, Mass	2 10@2 15	2 10	....	1 50
Salisbury Pt., Mass	....	....	....	....
Stamford	1 10†	....	....	....
Stonington	....	....	....	....
Taunton	....	....	....	....
Troy	1 15†	....	....	....
Warren, R. I	....	....	....	1 10
Wareham	....	....	2 10	....
Washington	....	....	....	....
Weymouth	....	....	....	....
Wilmington, Del	....	....	....	....

* And discharging and towing. † And discharging. ‡ And towing. § 3c. per bridge extra.

IRON MARKET REVIEW.

New York.

FRIDAY EVENING, Oct. 27, 1876.

American Pig.—We are reported sales of about 1,500 tons of pipe iron, and 800 tons of Glendon forge—the latter said to have been at about $21 at Hoboken. It is reported that a prominent brand of Lehigh iron has been selling at lower prices than our quotations, and it is generally believed that this brand can be purchased in quantity at a concession. In other brands there do not appear to have been any changes, although the market does not bear so favorable a look as it did a few weeks ago. We quote No. 1 foundry at $22; No. 2, $20; and forge, $19@$20.

Scotch Pig is more firm although there is but little business doing. The stock on dock and to arrive at an early day is very light. About 2,000 tons are held in store for higher prices. We quote Eglinton, $26@$26.50; Glengarnock, $27.50@$28; Coltness, $28.50@$29.

Rails.—There is a very much improved inquiry for immediate delivery, and considerable sales of steel are reported to have taken place in the West. We are reported sales of 3,500 tons of iron for New York delivery. It is thought 2,000 tons of this quantity were sold, delivered here, at a price between $36 and $37, or the

lowest price we have thus far heard of. Most of the steel mills are refusing to contract for Spring deliveries at present prices, a better demand and higher prices being anticipated for next year's business. We quote iron rails at mills at $36@$42, and steel at $52@54.

Old Rails.—We learn of nothing in these. We continue to quote nominally at $21.

Scrap Iron.—We are reported sales aggregating 300 tons of wrought on private terms, although supposed to have been at $26. We quote at $26@$27 for No. 1 wrought. We are reported a sale of 200 tons of old car wheels on private terms.

Philadelphia Iron Trade.

Weekly report of the Philadelphia Iron Market, furnished by Messrs. JUSTICE, COX, JR., & CO., Iron Merchants, 333 Walnut Street, Philadelphia. Week ending Oct. 26, 1876.

PIG iron is moving in a steady way in small lots; we do not hear of any large sales, though, in the aggregate, amounting to several thousand tons. We report sales of 1,500 tons Crane at quotations; 50 tons No. 1 Chickies, $22.50; 50 tons No. 1 Montgomery, $22; 100 tons No. 2 Montgomery, $20; and about 1,000 tons scattering lots at quotations. We quote No. 1 $22 to $22.50; No. 2, $20 to $20.50; forge, $19 to $19.50; favored brands forge irons, $21.

MANUFACTURED IRON.—Bars continue dull and depressed; the mills in this neighborhood are all short of orders, and only running to work up stock, or on specialties. Western mills continue to deliver bars at $1.90 to $2. We quote $2.25 to $2.35. Orders for skelp, tank, and sheet iron continue good; in fact, the only branch of manufactured iron that is in demand, and that is ruinously low in price. There has been quite a demand for muck bars this week to ship. We report sales of 1,000 tons; terms, etc., kept private. We quote, $36 to $39.

RAILS.—Nothing new to report; we quote $38 to $40 for iron, and $52 to $54 for steel.

OLD RAILS are quoted at $21 to $22, no sale.

SCRAP is quiet of sale at $24 to $27 for wrought, and $14 to $19 for cast. We report sales of 150 tons wrought at $27, delivered at Philadelphia.

Baltimore. Oct. 25, 1876.

Specially reported by Messrs. R. C. HOFFMAN & Co.

The iron market continues dull, with small sales at about quotations.

Baltimore Charcoal	$30@33	Anthracite No. 3	$20@21 00
Virginia Charcoal	28@33	Mottled and White	17@19 00
Anthracite No. 1	23@24	Charcoal C. B. Blooms	60@65 00
" No. 2	21@22	Refined Blooms	50@55 00

Boston. Oct. 21, 1876.

PIG is just a trifle less active. The sales of the past month have stocked up the small foundries, which as yet are getting only a very moderate run of orders. The offers from the junk market are sufficient in many localities to nearly supply the wants of rough castings ordered, while the aggregate of fine iron desired is so very small that it is only here and there a founder is running a blast of choice soft tough metal, and thither those wanting such stock turn their orders. There is a small, steady, increased consumption of iron castings, but not sufficient as yet to quicken perceptibly the pulse of the pig-iron holders. We note car lots selling here from $22 50 to $25, as to brand and quality.

BAR is having a little more business in a jobbing way, with prices just a trifle stiffer, that is, that some customers who had been able to shade $49 for guaranteed refined are now asked that figure plump. There is a little better feeling in common iron from under 40, the indications being that the demand for ship-iron is to encourage better prices. We notice that the Union Iron Works of Buffalo, who drummed the New York market for a purchaser of their 600 tons bars, were unable to do a thing with that market, but are understood to have sold nearly the whole into Boston, within the past week. —*Commercial Bulletin.*

Chattanooga, Tenn. Oct. 23, 1876.

Specially reported by J. F. JAMES. pig iron broker, etc., 233 Market Street.

Tenn. Ala. and Ga. Charcoal, No. 1 foundry	$20@ 21	Massillon iron, A No 1	29@30
" " " " No. 2 foundry	19@ 20	" " B "	1.31@—
" " " " gray forge	16@ 17	" " "	2.28@—
" and Georgia coke, No. 1 foundry	18@ 19	Cold Bl. Car Wheel, Mo.	30@35
" " " No. 2 foundry	17@ 18	" " " Tenn.	30@33
" " " gray forge	15@ 16	" " " Ala.	30@33
White and Mottled	14@ 15	" " " H. R.	33@35
Tennessee and Georgia cold-blast car wheel	21@ 22	Mo. Charcoal Blooms	50@65
Alabama " "	21@ 22	" Scrap "	45@55
Old Rails	cash 20 50	" " hammered Billets	75@80
Cast Scrap	" 13	Assorted Bar Iron 2 50, 60 days	
Wrought Scrap	" 18@ —	No. 1 Wrought Scrap 90c. cwt.	
		Heavy cast " 70 "	
		Light " " 50 "	

Cincinnati. Oct. 24, 1876.

Specially reported by Messrs. TRABER & AUBERT, commission merchants for the sale of pig iron, blooms, ore, etc.

The demand is very good and prices are firm. An early advance is anticipated. We quote:

CHARCOAL.

Hanging Rock, No. 1 Foundry	$24 00@25 00	4 mos	
" No 2, "	23 00@	4 mos	
" Mill	21 00@	4 mos	
Tennessee, No. 1, Foundry	23 00@23 50	4 mos	
Tennessee, No. 2, "	22 50@23 00	4 mos	
" Mill	21 00@	4 mos	
Missouri, No. 1, Foundry	@	4 mos	

STONE COAL.

Ohio, No. 1, Foundry	22 50@	4 mos
" No. 2, "	21 00@	4 mos
Ohio Mill	20 00@21 00	4 mos
Missouri, No. 1 Foundry	25 00@	4 mos
" No. 2, "	24 00@	4 mos
" Mill	23 00@	4 mos

CAR-WHEEL.

Hanging Rock, C. B	40 00@45 00	4 mos
Tennessee "	25 00@32 00	4 mos
Missouri "	32 00@33 00	4 mos
Alabama "	25 00@32 00	4 mos

BLOOMS.

Charcoal	60 00@ 75 00—cash

SCRAP IRON.

Cast	50c.@ 80—cash
Wrought	1 00@1 40—cash

Louisville. Oct. 24, 1876.

Specially reported by Messrs. GEORGE H. HULL & Co.

The market is firm for nearly all grades of iron, with a good demand. Most of the sales made are at outside figures. We revise quotations as follows.

The usual time, four months, allowed on quotations below.

HOT BLAST—CHARCOAL.

No. 1 Foundry, from Hanging Rock Ores	$24 00@25 00
No. 2 " " "	22 00@23 00
No. 1, Mill, from " "	20 00@21 00
No. 1. Foundry, from Alabama, Georgia and Tennessee ores	22 00@23 00
No. 2, Foundry, from Ala., Geor'a and Tenn. ores	20 00@21 00
No. 1, Mill, from " " "	20 00@21 00

HOT BLAST—STONE COAL AND COKE.

No. 1, Foundry, from Hanging Rock Ores	22 00@23 00
No. 2, " " " "	20 00@21 00
No. 1, Mill, " " " "	20 00@21 00
No. 1, Foundry, from Ala. Ga. and Tenn. Ores	21 00@22 00
No. 2, " " " "	20 00@21 00
No. 1 Mill, " " " "	20 00@21 00
No. 1 Foundry, from Missouri Ores	—— @ ——
No. 2 " " " "	—— @ ——
No. 1 Mill, from Missouri Ores	23 00@25 00

COLD BLAST—CHARCOAL.

Car Wheel from Hanging Rock Ores	35 00@43 00
" " Tennessee "	26 00@28 00
" " Alabama and Georgia Ores	28 00@40 00
" " Kentucky Ores	28 00@42 00

Milwaukee. Oct. 23, 1876.

Iron remains much the same—sales small.

per ton of 2,240 lb.

Frankfort L. S. Charcoal, No. 1	$28 00
" " " No. 2	27 00
" " " No. 3, 4 & 5	25 00
" " " No. 6	25 00
Mil. Anthracite L. S., No. 1	27 00
" " " No. 2	26 00
Wisconsin Iron, No. 1	26 00
Mahoning Valley Bit's No. 1	32 00
" " " No. 2	30 00

Pittsburg, Pa. Oct. 23, 1876.

Specially reported by A. H. CHILDS.

No. 1 Foundry	24 00@25—4 mos
" 2 "	22 50@23 00 "
Gray Forge	21 00@22 50 "
White and Mottled	18 00@20 "
Warm blast Charcoal	24 00@28 "
Cold blast Charcoal Western	40 00@45 "

Richmond, Va. Oct. 24, 1876.

Reported by ASA SNYDER, Esq.

About 150 tons pig iron have been sold since our last report. The market for charcoal iron continues firm, although transactions are on a small scale. No change in quotations.

Virginia Cold Blast Charcoal Pig Iron	$27 to $33
" Warm " " "	24 to 28
" " " Coke " " 1 X	23 to 24
" " " " " 2 X	21 to 22
" " " " " 3	20 to 21
" Anthracite 1 X	— to —
" " 2 X	— to —
" " 3	— to —

San Francisco, Cal.

From the *Commercial Herald*, Oct. 19, 1876.

Imports of pig iron for the first nine months of the current year aggregate 18,013 tons, against 18,228 tons same time in 1875. The consumption being less, and a heavy stock on hand at the beginning of the year, stocks are large and prices both low and nominal. The receipts of tin plate for nine months past aggregate 138,867 boxes, against 59,727 boxes same time last year. This large influx has contributed to a depressed market for months past. The last sale of Sydney tin was at 18¼c. We quote I. C. Coke, $7.50; I. C. Charcoal, $8.50@$9; I. X. ditto, $10.50@$11; Roofing Plate, $8 25. The *City of Sydney* brings from Sydney 1,200 pigs block tin.

St. Louis. Oct. 24, 1876.

Specially reported by Messrs. SPOONER & COLLINS, Commission Agents for all kinds of Iron.

Our market is active at present, and prices firm at quotations. Mill irons are in demand, and very scarce.

Mo. Stone Coal No. 1 Fy.	$25@26	Massillon iron, A No 1	29@30
" " " 2 "	23@24	" " B "	1.31@—
" " Gray Mill, 22½	@23	" " "	2.28@—
" Charcoal No. 1, Fy.	23@24	Cold Bl. Car Wheel, Mo.	30@35
" " " 2, "	22@23	" " " Tenn.	30@33
" " Gray Mill,	22@23	" " " Ala.	30@33
Tenn. " No. 1, Fdy	23@24	" " " H. R.	33@35
" " " 2, "	22@23	Mo. Charcoal Blooms	50@65
" "Gray Mill	22@23	" Scrap "	45@55
Va. Coke, No. 1, Fdy.	24@25	" " hammered	
" " " 2, "	23@24	Billets	75@80
" "Gray Mill,	21@23	Assorted Bar Iron 2 50, 60 days	
H. R. Char. No. 1, Fdy.	25@26	No. 1 Wrought Scrap 90c. cwt.	
" " " 2, "	24@25	Heavy cast " 70 "	
" " Gray Mill,	24@25	Light " " 50 "	

Montreal. Oct. 17, 1876.

During the past week prices have not been materially changed, and with the exception of Pig Iron, which is being bought up quickly at our quotations, and consequently making the sellers more inclined to hold on to their stock than to sell. Other goods are moving freely at our quotations, and on the whole business is pretty brisk for the season. We continue to quote: Pig Iron Eglinton and Clyde; $18.50@$19; Carnbroe $19@$19.50; Summerlee and Calder $19.50@$20; Langloan and Gartsherrie, $20@$20.50; Coltness, $21@$21.50; Hematite, $26@28. Bar, per 100 lb., Scotch and Staffordshire, $2@2.05; best do., $2.25@2.30. Swedes and Norway, $4.75@$5; Low Moor and Bowling, $6@$6.50.—*Monetary Times.*

METALS.

NEW YORK, FRIDAY EVENING, Oct. 27, 1876.

GREATER dullness than has existed in the metal market this week, has not been observed this year. There is not an article that has shown a particle of activity; while prices, almost without exception, are weaker.

Gold Coin.—During the week under review gold has ranged from 110¼ to 109⅝, and closed at 109⅞.

Bullion.—The market for silver shows quite an advance, as compared with a week ago. This market is quoted at 116¼@116½; San Francisco, 10 per cent. discount; and London, 53½d. Silver is higher, and in stronger demand abroad than here. The market has more the appearance of advancing steadily than for some time past, our Government absorbing so large a proportion of our products in its subsidiary coin operations, leaves little for export, and the European market will probably stiffen still further without a depressing influence from this side. Should there be war in Turkey, it is thought silver would materially advance. Gold is nominal at par to ¼ per cent. premium.

Copper.—The business done during the week has been very limited, prices ranging from 20¾c.@21c., mostly at the latter price, which is an outside figure today, although there is but little copper offering. The London market remains unchanged. The London *Mining Journal* says that it is rumored that nearly the whole European stock of copper, amounting to some 17,000 tons, is now held by one firm.

Tin.—There is nothing doing in this acticle, which is quoted in gold as follows: Straits, 17¼c.@17¾c.; L. & F., 16¾c.; refined, 17c.; Banca, 19½c. To-day's cable advices quote Straits, in London, at £75 10/.

Tin Plates.—These are very quiet at the following prices, gold, per box: Charcoal tins, $6.75@$7, and ternes, $6.25@$5.50; coke tin, $6@$6.12, and ternes, $5.50@$5.75.

MESSRS. ROBERT CROOKS & CO., of Liverpool, under date of October 12, says of Tin Plates:—"There is no improvement to note, purchases for the most part being for small lots and prompt shipment. Charcoal tins are in especial light demand, and favorite brands can now be had at a much lower figure than at any previous time this year—that is, we think we are right in saying, at the lowest figure known in the experience of the trade. Coke tin and terne are, generally speaking, firmer than Charcoals, at 6d above lowest point."

Lead.—There has been no business worthy of note during the past week, and prices have weakened all around. Ordinary lead is quiet at 6c. currency in this market, while Missouri soft is quoted at 6.10c.@6.15c. The latter is quoted in St. Louis at 5.75c. currency.

Spelter and Zinc.—Domestic spelter is quiet at 6⅝c. currency. Sheet zinc is dull at 8¾c. currency for domestic.

Quicksilver has advanced to 50c. per lb. in this city, and 45c. in San Francisco, while the London quotation continues at £8.

The San Francisco *Commercial Herald* of October 19 says of quicksilver: "The market a week since was made bare by the purchase of some 1,500 flasks for the bonanza mines at 44c.@44½c. Since then the price has ruled at 44½c.@45c., with some effort making in certain quarters to effect a combination, but that cannot be. The export to Mexico for the week took off 1,000 flasks, and to Hong Kong some 2,000 flasks, as per details annexed. Our exports by sea for nine months of 1875 and 1876 respectively stand thus: 18,548 flasks, valued at $1,141,680; 29,236 flasks, valued at $1,186,580. We note shipment of 200 flasks to Valparaiso per *Deux Amis.*"

THE SALT LAKE CITY SILVER ORE MARKET.

MR. J. B. MEADER, under date of the 21st inst., reports no change in the silver ore market, as compared with our last.

FINANCIAL.

New York Stocks.

NEW YORK, FRIDAY EVENING, Oct. 27, 1876.

THE market for coal shares closes weak and lower, and we note declines ranging from 3 to 7 per cent. throughout the list. The total transactions aggregate nearly 132,000 shares, against 306,000 shares as sold last week.

New Jersey Central Railroad.—About 30,000 shares of this stock has sold at from 38¾@35¼, closing ⅜ above the lower figure.

Delaware, Lackawanna and Western Railroad.—93,317 shares of this stock have changed hands during the week at from 80½@74½, closing at the lower figure.

The strike of the Scranton car shops men still continues, and the company are making arrangements to send their work elsewhere. It is said the strikers are backed by the coal miners and receive some support from the people of the city.

The train and depot employees of the company have determined not to strike because of the reduction in

their pay. The company has promised to restore wages to the old standard in the Spring.

Delaware and Hudson Canal Company.—Over 7,000 shares of this stock have changed hands during the week at fram 78½ and 71½, closing at the lower figure.

Consolidation Coal Company.—We note slight transactions in this stock, between $32 and $33 per share. It is rumored that the Baltimore and Ohio Railroad interest hold 35,000 shares of this stock; this is over one-third of the total issue of the Consolidation Company, the par value of the stock being $10,250,000, divided into 102 500 shares. The market value of the stock to-day, on the basis of its closing quotation, is equal to $3,167,500, so that this interest would represent over $1,000,000 invested in this particular corporation.

Mariposa Land and Mining Company stock is fairly active, with the advance noted in our last fairly maintained.

Oswego and Syracuse Railroad.—The extra rails on the Oswego and Syracuse Division of the Delaware, Lackawanna and Western Railroad are being taken up, and no more broad-gauge rolling stock will pass over that branch. The gauge will soon be reduced to the standard. four feet eight inches, and then a task which will cost in all probably $3,000,000, and which will make the Delaware, Lackawanna and Western Line narrow-gauge throughout, will be completed.

Pittsburg and North-western Railroad.—It is now proposed to complete this road from Pittsburg to Youngstown, Ohio, as a narrow-gauge, and there is talk of resuming work this Fall. There was a good deal of work done on it last Winter by the contractors, WEISS, BRITTON & Co., but the company became embarrassed financially, and work was stopped. It was originally intended to be a standard gauge road.

The Rhode Island Petroleum Company will hold its annual meeting at Providence on the 6th of November.

The Shafer Farm Oil Company will hold its annual meeting in New York on the 4th of November.

Cumberland, Md., Steel Manufacturing Company.—The annual meeting of this company will be held on the 6th of November.

Quotations and Sales of Stocks and Bonds.

For the week ending Oct. 27, 1876.

STOCKS.

	Highest	Lowest	Closing	Shares sold.
Pennsylvania Coal Co	—	—	*220	—
Consolidation Coal Co	33	33	31	50
Spring Mt. Coal Co	—	—	*55	—
American Coal Co	—	—	*54	—
Maryland Coal Co	—	—	10	—
Del., Lack., and West. RR. Co.	80¼	75½	75⅝	93,317
New Jersey Central RR. Co.	38¾	35¾	36¾	29,433
Delaware and Hudson Canal Co.	78½	73⅛	73¼	7,141
Quicksilver Mining Co. pref'd	—	—	17	—
" " " Common	—	—	12½	—
Mariposa Land & Min. Co. pref'd	7	6⅛	6	800
St. Louis & Iron Mountain RR.	13⅛	12⅞	12⅞	1,207
Total Shares sold				131,948
Sales for the week previous				306,456
Decrease				174,508

* Nominal.

BONDS.

	Inter'st	Sales.	Price.
Del., Lack. & West. 2d M	M. & S.		@107½
" " " 7's Con'ble	J. & D.		@105
Cent'l RR. of N.J., 1st M., New	F. & A.	12,000	@110⅛
" " " 1st Cons		31,000	88 @ 88½
" " " Convert'le	M. & N.	27,000	87½@ 88
Lehigh & W.-B'e, Con. Guar'd.		18,000	69 @ 70
Am. Dock & Imp. Mt. Bonds	J. & J.		@ 85
Del. & Hud. Can., 1st M., 1891		7 000	@108
" " " 1884			@105
" " " 1877			@104
" " " Coup. 7's, 1894		5,000	@ 98
" " " Reg'd 7's, 1894			@
St. L. & Iron Mountain, 1st M	F. & A.	9,000	100 @100½
" " " 2d M	M. & N.		@ 70
Chesapeake & Ohio 6's, 1st M.		2,000	@ 26
" " " Ex. Coupon			@ 20
Mariposa Gold Loan con. 7s			@100⅝
Total sales		$111,000	

Closing quotations, in the absence of sales, represent the latest prices bid.

Philadelphia Stocks.

PHILADELPHIA, Thursday Evening, Oct. 26, 1876.

THE quotations of the coal shares at this market generally exhibit a fractional advance. The sales show a falling off in amount of about 18,000 shares, as compared with our last. A pretty steady feeling has prevailed during the week, and prices at the close were well maintained.

Pennsylvania Railroad.—About 36,000 shares of this stock have sold during the week at between 48 and 48¾, closing at 48½. The employees of the railroads operated by this company, have been the recipients of a new book of rules for their government, to take effect November 6, 1876. Considerable change has been made from the old rules.

Reading Railroad stock has sold between 22⅞ and 25⅛ closing at 24¾, with sales of 54,000 shares for the week. With regard to the recent bolstering up of this stock, it is stated in the *Public Record* that

"Mr. MCCALMONT advanced the directory $500,000 gold, and lent it 50 000 shares of Reading stock, both of which were sent here from London in June, or thereabout, with the advice that in Mr. MCCALMONT'S view, it would be best to use this cash and the funds to be borrowed on the 50,000 shares of stock to provide for the floating debt, rather than for sustaining the stock, as had been suggested by the directory. He, however, appears to have qualified this advice by saying to Mr. GOWEN and the Philadelphia directors that they were on the spot and should be better able to judge which use of his advances was best. They followed their own course, and not the one preferred by Mr. MCCALMONT, as has been seen, and held up the stocks until this $500,000 in cash, and the amount borrowed on the 50,000 shares, at the rate of $35 each, amounting to about $2,250,000, had been exhausted, when the collapse so long to be remembered came, and the stock fell from 44 to 19⅞ within a few days.

Lehigh Valley Railroad.—Dealings in this stock have been very limited, the total sales scarcely reaching 600 shares. The quotations ranged between 49 and 49¾, closing at 49½. The Centennial travel is benefitting this road, as well as all others leading towards Philadelphia. This company has recently been compelled to decline several heavy excursions on account of their utter inability to obtain cars for the extra transportation.

Lehigh Coal and Navigation Company.—This stock closes a little lower. Sales for the week aggregate 4,530 shares, the quotations being between 31⅛ and 32⅛, closing at the lower figure. It is not believed that this company will be able to pay a dividend, which will be due during the coming month. This, it is said, is not because the regular dividend has not been earned, but because of the extension given the New Jersey Central on its indebtedness to the Navigation Company for carrying charges to the amount of $700,000. This was arranged by the new directory of the Central, and will not be available in time, and rather than borrow to pay one the directory, it is thought, will decide not to declare one.

Bonds show no improvement in sales or prices.

Pennsylvania Salt Manufacturing Company.—At the annual meeting of this company held on the 26th inst., the following Board of Directors were elected to serve during the ensuing year: ALBERT F. DAMON, SAMUEL F. FISHER, THOMAS S. ELLIS, FRANCIS P. STEEL, JOSHUA LIPPINCOTT, JAMES SIMPSON, ANDREW M. EASTWICK. ALBERT F. DAMON was elected President, and SAMUEL SIMES, Secretary and Treasurer.

Buck Mountain Coal Company.—The Board of Directors have declared a dividend of three per cent. on the capital stock, or one dollar and fifty cents per share, payable on the 1st of November.

Cambria Iron Company.—We note a recent auction sale of 50 shares of the stock of this company at 14⅝ per share.

Quotations and Sales of Stocks and Bonds.

For the week ending Oct. 26, 1876.

STOCKS.

	Highest	Lowest	Closing	Shrs
Lehigh Valley RR. Co.	49¾	49	49½	583
Pennsylvania RR.	48¾	48	48⅛	35,706
Reading RR.	25⅛	22¾	24¾	54,170
Lehigh Coal and Nav. Co	32½	31⅛	31⅛	4,530
Penn. Canal	—	—	*9	—
Buck Mountain Coal Co.	—	—	*25	—
Fulton Coal Co.	—	—	*3⅛	—
Locust Mountain Coal Co.	—	—	—	—
Westmoreland Coal Co.	—	—	*85	—
St. Nicholas Coal Co.	—	—	*1	—
Cambria Iron Co.	—	—	*16	—
Crane Iron Co.	—	—	*25	—
Emaus Iron Co	—	—	—	—
Pennsylvania Salt Manufact. Co.	—	—	68	—
Total shares sold				94,989
Sales for the week previous				112,855
Decrease				17,866

* These quotations are nominal.

BONDS.

	Sales.	Price
H. and B. T. RR. 1st mortgage, 7s	$ —	@107
" " " 2d " "	—	@ 102
" " " 3d " cons	—	@ 38
Lehigh Valley RR. Con. mtg. 6s	13,000	99 @ 99¾
" " " 7s, 1910	1,000	@111
" " " 6s Reg	—	@108½
" " " 6s coup	1,000	@108
Pennsylvania RR. 1st mtge. 6s	1,000	@107
" " gen. " con. 1910	1,000	@107
" " gen. " 7s, reg	—	@104
" " Cons. M. 6s reg	2,000	@100½
Phil. & Reading RR. Con. M. 7s Reg	28,000	103 @104
" " " G. M. 7s, coup	—	@105
" " " new convertible 7s	25,000	72 @ 75
" " 6s '43.80	2,000	@103
" " Cons M. 7s coup	—	@103
" " debenture 6s	200	@ 65
" " Tamaqua tract	—	@ 66
Lehigh Coal & Nav. Co., 6s '84	—	@101
" " " RR. 6s, '97	4,000	@101¼
" " " con. 7s	—	@ 95
" " " 6s gold loan	3,000	@100
" " " Conv. gold loan	—	@102
Penn. Canal, 6s	3,000	@ 72
Penn. and N. Y. Canal, 7s	—	@110¾
Ches. and Del. Canal, 6s	—	@ 85
Susquehanna Canal, 6s	1,000	@ 68
Delaware Division Canal, 6s	—	@—
Susquehanna Coal Co. 6s	—	@ 77
Buck. Mount Coal Co. 6s	—	@—
Penn. Gas Coal Co. 6s	—	@—
Honeybrook Coal Co. 7s	—	@—
Total amount of sales	$85,200	

Closing quotations, in the absence of sales, represent the latest prices bid.

Copper Stocks.

Specially reported by Messrs. WILSON W. FAY & Co., Bankers and Brokers, Room 7 Traveller Building, 31 State Street, Boston.

BOSTON, THURSDAY EVENING, Oct. 26, 1876.

THE market has lost some of its vitality for the past week, but still the prices hold up well. Calumet is off 2½ per share. Central strong, at 35 bid, with no stock offering. Copper Falls steady and dull; not a sale for the week; the latter are still good, but as yet no great mass has been discovered. Duncan had a very good letter this week from the mine, which rallied the shares to 12¼ bid, but stock coming out free, it immediately declined till it reached 11 to-day, 10¾ being the bid at present writing. International very steady, and little stock changing hands; 1¼ to 1⅜ has been the figure for the week. National is strong, at 2¼ to 2⅜ bid. Franklin is heavier, and seems, for the moment, to be without friends. Their letters from the mine are said to be favorable. Quincy is off one point, and steady. In the small coppers there has been less doing than for some weeks past, but we look for more activity and higher prices after election is over; at present that absorbs more attention than the coppers.

Gold and Silver Stocks.

AMERICAN MINING BOARD.

NEW YORK, FRIDAY EVENING, Oct. 27, 1876.

THE sales in the American Mining Board during the past week have amounted to 56,495 shares, an increase of about 4,000 shares, as compared with the transactions of the previous week. We note an addition of several new companies to the list, the stock of some of which is not liable to assessment. This is a feature which is generally appreciated by investors, though it certainly has been the cause of the failure of many valuable mines.

Grant Mining Company.—Nearly 9,000 shares of this stock have changed hands during the week, gradually selling down to 2¼ for future delivery, and 2⅞ regular. This is a decline of $3.37¼ per share from the closing price of a week ago.

Miscellaneous Sales for the week, have been as follows:

Cederburgh Northern Extension Gold Mining Company, California—600 shares at from $5 to $5.12½ per share.

Consolidated Hercules Silver Mining Company, Colorado—350 shares at from $6 to $6.12½ per share.

Fast Justice Gold and Silver Mining Company, Nevada—7,150 shares at from $1 to $2 per share.

Merchants and Miners Tunnel Company, Colorado—700 shares at from $5 to $5.25 per share.

September Bullion Product.—The bullion product of some of the principal mines for the month of September, is reported as follows: Belcher, $200,000; California, $1,290 999; Chollar Potosi, $59,769; Consolidated Imperial, $16,847; Consolidated Virginia, $865,813; Justice, $144,000; Leopard, $77 342; Manhattan, $131,557; Northern Belle, $145,000; Ontario, $60,020; Ophir, $350,011; Tybo Consolidated, $78,569; total. $3,419,977. The percentage of gold in this bullion is nearly equal to 50 per cent. We give below, from our various exchanges, very full information from the principal mines.

Consolidated Virginia.—The daily yield of the mine is 450 tons of ore, which is all that the mills can crush at present. The quality of the ore continues of the same uniform richness as in the past, and the ore breasts show well at every point where the ore is being extracted. On the 1400-feet level the ore breasts going north show a steady improvement. The new Consolidated mill has settled down to regular work, everything working with the utmost perfection. Yield of the mine for October will be amply sufficient to insure the payment of the regular dividend of $2 per share. The west drift from the C. and C. shaft on the 1650-feet level is advancing at the rate of nine feet per day. The north drift on the 1700-feet level is being advanced as rapidly as the great heat and the difficulties under which the work is prosecuted will admit of. A large supply of Winter necessities is being laid in, and every preparation made indicates that the mine will now have a long, uninterrupted and prosperous run.

California.—Daily yield 450 tons of ore. This amount of ore is being extracted and sent to the mill daily for reduction. The ore stopes on both the 1500 and 1600-feet levels are yielding rich ores and are looking as promising for the future as ever. The yield for October thus far is sufficient to insure the payment of the usual monthly dividend of $2 per share. Everything is in the best possible working condition, and with the present facilities for working ore the yield of bullion can be kept up to $1,500,000 per month without any strain whatever. The main south drift on the 1600-feet level is steadily advancing, running through the center of the ore vein to form an air connection with the north winze sunk in the California ground. The face of the drift is still in good ore, although it is not of quite so rich a character as that encountered for the past four weeks. The west drift on the 1650-feet level of the C. and C. shaft is being advanced toward the ore vein with all possible speed. Sinking the C. and C. shaft is making good headway, the rock in the bottom still being quite hard and the flow of water strong.

The monthly pay rolls of the two companies above, amounts to about $100,000 in gold, this is divided among 933 men.

Imperial Consolidated.—The south drift from the bottom of the south winze on the 2135-feet level is steadily advancing to connect with the north drift from the Yellow Jacket. The north drift from the bottom of the same winze is also making good progress, the face in soft ledge matter, carrying streaks of fine quartz. The south drift from the bottom of the north winze on the same level is being advanced to meet the north drift from the south winze. The air in all portions of the mine is being wonderfully improved by the new pressure blower, recently erected. The pipe from this blower leading into the mine is 22 inches in diameter, and the benefit already derived from it is very great. On the very lowest levels the thermometer now shows only 92 degrees, where it before stood at 120 and 130 degrees.

The new Consolidated Virginia pan-mill reached its full capacity on the 16th inst., for the first time since its construction. Its estimated production of amalgam is $27,500 a day. The California pan-mill turns out about $28,250 a day. The remaining mills running on bonanza ores average about $50.000 a day.

Justice.—Daily yield, 160 tons of ore, keeping the mills steadily running. The ore stopes on the 400, 500, and 600-feet levels are yielding the usual amount of good milling ore. The ore stopes on the 700-feet level are improving as the work progresses both north and south. It is the intention to soon start another mill with a capa-

MINING STOCKS.

AMERICAN MINING BOARD'S LIST.

Name of Company.	Location.	Feet on Vein.	Capital Stock.	*a* No. of Shares.	Total Assessments Levied.	Date and Amount of Last Assessment per share.	Total Dividends paid.	Date and Amount of Last Dividend per share.	Closing Quotations *g* American Currency. Sat.	Mon.	Tues.	Wed.	Thurs.	Fri.	Shares sold during the week.
Alpha Cons. G. S.	Nevada,	300	$ 3,000,000	30,000	$180 000	Aug. 12, '75, $1.	....	.....	$47 00	$49 75	*$52 00	*$50 00	*$50 00	$49 75	550
Belcher, G. S.	Nevada,	1,040	10,400,000	104,000	660,400	April 14, '71, $1.	$15,397,200	April 10, '76, $1.	20 50	21 00	21 50	21 00	20 50	*21 00	620
Best and Belcher, G. S.	Nevada,	545	10,080 000	100,800	136,192	July 13, '74, 50c.	....	.....	*52 00	54 50	50 37½	50 50	*53 00	43 50	430
Bullion, G. S.	Nevada	943⅛	10,000,000	100,000	2,052,000	Sept. 22, '76, $2.50.	....	.....	....	*42 00	*41 00	*43 50	43 00	37 75	270
Caledonia, G. S.	Nevada,	2,188	10,000,000	100,000	1,210,000	Aug. 28, '76, $1.00.	....	.....	*12 50	11 62½	11 87½	11 25	11 50	11 50	160
California, G. S.	Nevada,	600	54,000,000	540,000	....	.....	6,480,000	Oct. 16, '76, $2.	....	....	*68 00	67 00	66 00	64 00	420
Centennial, G.	Califor.	66 acres	1,000,000	100,000 *b*	....	.....	....	.....	1 50	....	1 50	1 50	....	....	1000
Chollar Potosi, G. S.	Nevada,	1,400	2,800,000	28,000	1,282,000	June 26, '76, $5.	3,080,000	Feb. 10, '72, $1.	....	88 00	*2 00	88 00	87 00	87 75	400
Cleveland, G.	Colo.	3,715	250,000	25,00 *b*	....	.....	....	.....	8 62½	8 62½	8 50	9 00	9 25	9 37½	5,450
Cons. Imperial, G. S.	Nevada,	468	50,000,000	500,000	125 000	July 25, '76, 25c.	....	.....	4 50	4 75	4 37½	4 87½	4 50	4 25	550
Cons Virginia, G. S.	Nevada,	710	54,000,000	540 000	411,200	June 11, '73, $3.	23,760,030	Oct. 11, '76, $2.	57 50	61 25	59 00	*62 25	*55 00	57 00	125
Confidence, G. S.	Nevada,	130	2,496,000	24,960	243,840	March 18, '73, $1.	78,000	May 1, '65, $8.13⅓	....	18 00	17 50	17 50	17 50	....	600
Crown Point, G. S.	Nevada,	600	10,000,000	100,000	1,073,370	Aug. 15, '76, $1.	11,588,000	Jan. 12, '75, $2.	*15 00	14 50	13 00	13 00	13 50	....	950
Eureka Cons. G. S. L.	Nevada,	..	5,000,000	50,000	100,000	May 26, '76, $1.	1,000,000	Aug. 5, '75, $1.	....	....	....	....	....	16 25	200
Exchequer, G. S.	Nevada,	400	10,000,000	100,000	280,000	Sept. 22, '76, $1.	....	.....	16 00	16 25	*16 50	16 25	16 75	16 75	1250
Gould and Curry, G. S.	Nevada,	621	10,800,000	108,000	2,018,000	Aug. 11, '75, $1.	3,826,800	Oct. 10, '70, $10.	17 37½	16 87½	17 25	16 25	17 25	16 75	1480
Grant, G. S.	Nevada,	1,000	10,000,000	100,000	....	.....	....	.....	4 50	4 87½	4 50	3 87½	2 75	2 62½	8950
Hale & Norcross, G. S.	Nevada,	400	11 200,000	112,000	2,242,000	Oct. 10, '76, $1.	1,598,000	April 10, '71, $5.	9 12½	10 50	9 37½	9 25	9 25	10 25	3350
Hukill, S.	Colo.	3,288	1,000,000	10,000	....	.....	10,000	$1	....	....	....	....	....	....	.....
Indian Queen, S.	Nevada,	1,000	3 000,000	60,000	....	.....	60,000	.....	....	....	....	....	....	....	.....
Julia Cons. G. S.	Nevada,	3,000	11,000,000	110,000	110,000	Sept. 11, '76, $1.	....	.....	6 75	7 25	8 25	7 75	7 75	7 75	700
Justice, G. S.	Nevada,	2,100	10,500,000	105,000	1,502,500	Sept. 14, '76, $5.	....	.....	27 00	28 00	28 75	27 00	26 37½	....	920
Kentuck, G. S.	Nevada,	95	3,000,000	30,000	270,000	Dec. 3, '74, $1.	1,252,000	March 8, '70, $5.	13 50	13 50	13 75	13 50	*14 00	....	600
Kossuth, G. S.	Nevada,	2,700	5,400,000	108,000 *c*	405,000	Aug. 15, '76, 50c.	....	.....	*1 87½	....	....	....	....	....	.....
Leopard, G. S.	Nevada,	1,500	5,000,000	50,000	50,000	March 31, '76, $1.	112,500	Oct. 16, '76, 50c.	9 37½	....	9 00	8 00	8 00	8 50	1000
Mexican, G. S.	Nevada,	600	10,080,000	100,800	100,800	Sept. 5, '76, 50c.	....	.....	32 00	32 75	*32 00	30 00	31 50	*32 00	600
Merrimac, S.	Mass.	1,500	500,000	5,000	....	.....	5,000	Oct. 10, '76, $1.	39 75	39 50	*40 50	40 75	40 62½	40 00	1250
Morning Star	Nevada,	1,600	8,000,000	80,000	....	.....	....	.....	....	....	....	....	....	....	.....
Northern Belle, S.	Nevada,	1,600	5,000,000	50,000	....	.....	850,000	Oct. 16, '76, $1.	....	27 75	*28 75	*28 00	....	....	300
Ophir, G. S.	Nevada,	675	10,080,000	100,800	2,034,400	May 14, '75, $1.	1,394,4 0	March 9, '64, $4.	59 25	60 00	*60 00	*58 00	*59 50	55 00	150
Original Comstock, G. S.	Nevada,	....	10,000,000	10,000	....	.....	....	.....	1 87½	....	1 50	1 37½	1 62½	1 25	8250
Overman, G. S.	Nevada,	1,200	3,840,000	38,400 *b*	2,107,08	June 26, '76, $3.	....	.....	*100 00	91 00	....	....	....	....	50
Pleasant View	Colo.	1,200	200,000	20,000	....	.....	....	.....	2 75	2 75	2 25	2 25	2 25	....	1090
Raymond and Ely, G. S.	Nevada,	5,000	3,000,000	30,000	510,000	Nov. 5, '75, $3.	3,075,000	Sept. 10, '73, $3.	6 37½	....	7 00	7 00	....	....	560
Santiago, G. S.	Nevada,	2,000	11,200,000	112,000	....	.....	....	.....	....	....	....	....	.. .	....	.....
Savage, G. S.	Nevada,	800	11,200,000	112,000	2,746,000	May 31, '76, $2.	4,460,000	June 11, '69, $3.	*16 50	17 50	17 25	15 75	17 00	15 75	1742
Seg. Belcher, G. S.	Nevada,	160	640,000	6,400	244,800	April 11, '76, $5.	....	.....	....	100 00	....	100 00*	....	....	100
Sierra Nevada, G. S.	Nevada,	3,650	10,000,000	100,000	1,400,000	Aug. 22, '76, $1.	102,500	Jan. 16, '71, $1.	14 50	14 50	14 50	13 25	*13 50	....	1200
Silver City, G. S.	Nevada,	3,900	6,310,000	63,100	....	.....	....	.....	3 12½	*2 50	*1 50	2 25	*2 50	....	150
Silver Hill, G. S.	Nevada,	5,400	10,800,000	108,000	810,000	Sept. 18 '76, $1.	....	.....	....	10 25	....	....	....	9 25	50
South Comstock, G. S.	Nevada,	1,500	10,000,000	100,000	44,000	May 3, '76, 10c.	....	.....	....	....	....	....	....	....	.....
South. California, G. S	Nevada,	1,500	5,000,000	50,000	....	.....	....	.....	....	....	....	....	....	....	.....
Southern Star, G. S.	Nevada,	1,500	6,000,000	600,000	....	.....	....	.....	2 25	1 50	1 37½	1 37½	1 25	1 25	6100
Trenton, G. S.	Nevada,	..	10,000,000	100,000	....	.....	....	.....	....	....	....	....	....	....	.....
Union Cons. G. S.	Nevada,	850	10,000,000	100,000	260,000	March 3, '76, $1.	....	.....	....	15 25	*15 00	13 00	14 62½	....	900
West Belcher, G. S.	Nevada,	1,000	10,000,000	100,000	....	.....	....	.....	....	....	....	....	....	....	.....
Yellow Jacket, G. S.	Nevada,	1,200	12,000,000	120,000	2,598,000	July 18, '76, $1.	2,184,000	Aug. 10, '71, $2.50.	26 75	27 87½	27 87½	27 25	25 00	28 12½	2,510
Young America, S.	Nevada,	1,000	3,000,000	30,000	6,000	Oct. 23, '76, 20c.	....	.....	....	....	....	....	....	....	.....
			Assessments levied to date, $27,217,58		Div'ds pd. to date, $82,103,400								Total sales.....		55,495

BOSTON STOCK MARKET.

									Fri.	Sat.	Mon.	Tues.	Wed.	Thurs.	
Allouez, C.	Mich.	..	$1,000,000	20 00 *c*	$040,000	May 9, '76. $5.	....	.....	....	....	....	....	10 00	10 00	.....
Calumet and Hecla, C.	Mich.	2¾ mile	2,000,000	80,000 *i*	1,200,000	.....	$10,650,000	Aug. 15, '76, $5.	178 50	171 50 *j*	172 00 *j*	172 00 *j*	171 00 *j*	171 00 *j*	.... .
Central, C.	Mich.	..	500,000	20,00 *c*	100,000	June, '62, 65c.	1,020,000	Feb. 17, '76, $5.	35 00	35 00	35 00	35 00	35 00	35 00	.....
Copper Falls, C.	Mich.	..	1,000,000	20,000 *d*	535,000	May 10, '76,	100,000	Nov., '71, $1.	5 00	4 75	4 87½	5 00	4 87½	4 75	.....
Dana, C.	Mich.	..	500,000	20,000 *d*	68,000	Jan., '73, 50c.	....	.....	14	14	14	14	13	12½	.....
Dawson, S.	Canada.	..	1,200,000	60,000 *f*	....	.....	....	.....	27½	27½	30	27	27	27	.....
Duncan, S.	Canada.	..	1,200,000	60,000 *f*	75,000	July, '76, 41⅔.	....	.....	11 75	11 50	12 12½	12 00	11 75	10 75	.. ..
Franklin, C.	Mich.	..	500,000	20,000 *d*	360,000	June, '68, $5.	585,000	Nov., '71, $1.	14 37½	14 50	14 00	14 00	14 00	14 00	.....
Humboldt, C.	Mich.	..	500,000	20,000 *d*	100,000	Sept. 28, '76, 15c.	....	.....	15	15	13	15	16	15	.....
International, S.	Canada.	..	1,200,000	60,000 *f*	....	.....	....	.....	1 25	1 25	1 37½	1 25	1 25	1 25	.....
Madison, C.	Mich.	..	50 ,000	20,000 *d*	123,000	Sept. 11, '74, 10c.	....	.....	27	27	27	27	27	27	.....
Mesnard, C.	Mich.	..	500,000	20,000 *d*	160,000	April 12, '65, 50c.	....	.....	40	40	40	40	40	40	.....
Minnesota, C.	Mich.	..	1,000,000	20,000 *e*	436,000	June 10, '69, $1.	1,820,000	Mch. 15, '76, 50c.	1 75	1 75	....	1 50	1 75	1 75	.....
National, C.	Mich.	..	500,000	20,000 *e*	195,000	Oct., '75, $1.	360,000	Oct., '73, $1.	2 25	2 25	2 37½	2 25	2 25	2 25	.....
Osceola, C.	Mich.	..	1,000,000	40,000 *d*	880,000	May 1, '76, $2.	....	.....	19 50	19 50	20 00	19 50	19 50	19 50	.....
Petherick, C.	Mich.	..	500,000	20,000 *d*	165,533	March 22, '76, 50c.	....	.....	70	70	65	60	62	60	.....
Pewabic, C.	Mich.	..	500,000	20,000 *d*	185,000	June, '68, $3.	460,000	July, '73, $1.	4 37½	4 50	4 00	4 25	4 00	4 00	.....
Phenix, C.	Mich.	..	1,000,000	20,000 *d*	817,500	Sept., '70, $3.	....	.....	....	....	....	....	....	....	.....
Quincy, C.	Mich.	..	*h* 200,000	20,000 *b*	....	.....	2,050,000	Oct. 28, '76, $3.	49 00	49 00	49 00	48 00	48 00	48 00	.....
Ridge, C.	Mich.	..	500,000	20,000 *d*	....	.....	....	.....	6 37½	6 25	6 25	6 25	6 25	6 25	.....
Rockland, C.	Mich.	..	500,000	20,000 *d*	495,000	Jan., '74, $1.	....	.....	30	30	30	30	30	30	.....
Star, C.	Mich.	..	500,000	20,000 *d*	265,000	March 30, '76, 50c.	....	.....	37	37	37	37	37	37	.....
Superior, C.	Mich.	..	500,000	20,000 *d*	340,000	March, '74, 25c.	....	.....	12½	12½	12½	12½	13	13	.....
			Assessments levied to date, $7,440,033		Div'ds paid to date, $23,045,000								Total sales		5,700 shares.

G. Gold. S. Silver. L. Lead. C. Copper. *a* The par value of shares is $100, unless otherwise designated. *b* Par value $10. *c* Par value $50. *d* Par value $25 each. *e* Par value $15. *f* Par value $20. *g* Closing quotations represent the latest prices bid. Prices asked will have a * affixed. *h* Full paid. *i* On the four old companies. *j* Ex div. $5 00 per share.

city of about 55 tons per day. East crosscuts Nos. 1 and 2, on the 800-feet level, are steadily advancing, the face of each being in soft ledge matter, with heavy stringers and bunches of rich ore. It is apparent that the east ore body on this level will be reached in a very few days more. A heavier flow of water has been encountered for some days past in crosscut No. 3, on the 800-feet level, which has impeded its progress somewhat. The water has been lowered in the main shaft sufficiently to admit of the resumption of work in the main north-east drift on that level. The main south-east drift is steadily advancing toward the ledge.

Yellow Jacket.—The east and west crosscuts, 100 feet south of the east winze on the 2,040-feet level, have jointly been extended a distance of 406 feet east and west, passing nearly the entire distance through lively ledge matter, some of which gave excellent ore assays. Another crosscut will be started in a day or two more at a point 100 feet south of crosscut No. 1 on the same level. The north drift on the 1,940-feet level, running to connect with the south drift on the 2,135-feet level of the Imperial mine, is making good progress. Arrangements have been completed for the starting of a large new working shaft at or near the site of the North Chipman shaft, situated about 2,600 feet to the eastward of the present working shaft. It has not yet been decided as to whether the North Chipman shaft, which is down 100 feet, will be used as a starter or not. This shaft will be sunk to a depth of 800 feet, with a small donkey hoisting engine, which will give ample time for the erection of the hoisting and pumping machinery, which, in complete fitness, power, and durability, will have no superior on the line of the Comstock. This shaft will cut the ore vein of the Comstock at a depth of about 3,000 feet from the surface. The site selected for the shaft is close to the railroad, and in every way is one of the most convenient and elligible that it would have been possible to select.

Julia.—The new machinery is all in readiness to resume sinking the main shaft, which will be done in a day or two more. The east drift on the 1,800-feet level during the week tapped a flow of water so strong that it has been deemed best to suspend work at that point until the heavy head of water is somewhat exhausted. The face of the main south drift on the 1,800-feet level is still in quartz and porphyry mixed. The main south drift on the 1,600-feet level is advancing toward the Ward shaft, the face in ledge matter of a greatly improved character.

Chollar-Potosi.—Daily yield, 100 tons of ore, the assay value of which is $30 per ton. This ore is being taken from the old upper workings and is crushed at mills as fast it is extracted. Sinking the main incline is progressing at the rate of two and one-half feet per day. It is down twenty-four feet below the 1,600-feet level. Sinking the combination shaft is going rapidly forward. The erection of the new pumping machinery is rapidly nearing completion. The hoisting engines are already doing good service.

Overman.—The north and south drifts on the 1,200-feet level are each making good progress, both being in quartz of a fine character. Sinking the main shaft is making the usual fair rate of progress, the rock in the bottom blasting out well. The erection of the new pumping engine is being pressed toward completion as rapidly as possible. This engine will be equal, if not superior, to any now in operation or in course of construction on the Comstock It will be about 700 horse-power and be fitted with all the latest improvements in the engineering line.

Ophir.—Daily yield, 300 tons of ore. The ore stopes are looking well, and continue to yield a good supply of high grade ore. The south drift from the bottom of the winze, fifty feet below the 1,600-feet level, is showing some fine ore. The north drift on the same level is making good progress. The west cross-cut from the north drift on the 1,600-feet level is making good headway. The north drift on the 1,700-feet level is being steadily advanced, the face in very favorable ground. Sinking the main incline is making good headway.

Savage.—The pumps are steadily gaining on the flow of water, which is being lowered in the shaft at the rate of 20 to 25 feet per day. The new air-compressor will be in good running order in a very few days.

Sierra Nevada.—The flow of water at the bottom of the shaft is still strong. The prospecting drifts at the 1,700-feet station are looking more favorable. The north drifts on both the 1,250 and 1,500-feet levels are showing an improvement.

Belcher.—Daily yield, 300 tons of ore. No changes on the prospecting levels. New pumping machinery is working finely.

Kossuth.—The west drift at the 600-feet station is steadily advancing toward the ore-vein, the face in very favorable ledge matter. Some very rich stringers have been encountered.

Sutro Tunnel.—Face of header in somewhat difficult working ground, being porphyry and clay, require considerable care and substantial timbering. Total length of tunnel this morning 14,711 feet. Occasional small seams of quartz and clay have been met with during the last two or three days which gave low assays.—*Gold Hill News*, Oct. 19.

Raymond and Ely.—The last official letter says: The drift being run west on south vein, 10th level, has been extended 32 feet during the week, making its total length 351; this drift has been penetrating a very promising formation for some distance and at one point a small spot of very good ore was encountered, but proved to be very limited in extent; as soon as the drift is connected with winze, which will be in a few days, some little prospecting will be done at the point where the ore

was disclosed to ascertain its extent and value. The drift being run west on the 11th level has been extended 20 feet during the week, making the total length 1,684 feet; the fissure still retains its width and the filling between the walls presents the same promi-ing appearance as reported heretofore and the ground is getting softer, admitting better progress than formerly. The prospecting being done on the 8th and 9th levels has not resulted very satisfactory yet; some little ore has been disclosed, but it proved of rather low grade. The results obtained from the tailings which were run through the mill shows they have not been exposed long enough to work satisfactorily. After they have lain six or eight months longer they can be run through the mill and good results can be obtained.—*Pioche Record*, Oct. 17.

The Crismon Mammoth Gold Mine, of Tintic District, Utah, declared a ividen of $17,000 on the 18th inst., The yield of this mine it is stated, a e remarkable and large quantities of rich ore are reported to be in sight.

San Francisco Stock Market Transactions.—The *Commercial Herald*, of the 19th inst., has compiled the following figures, showing the sales of the San Francisco Stock Board for the first nine months of 1873, 1874, 1875, and 1876:

MON.	1873.	1874.	1875.	1876.
Jan..	$9,185,207	$28,513 745	$42,563,475	$28,701,785
Feb..	9,540,637	16,365,620	19,435,535	17,204,105
Mar..	12,931,969	17,080,245	15,737,640	35,925,385
April.	9,993,134	16,783,510	14,657,505	20,736,485
May .	15,593,352	12,213,035	19,949,615	10,788,195
June.	11,296,249	14,627,405	12,641,485	12,643,440
July..	9,163,145	12,145,000	20,110,715	17,332,845
Aug..	7,164,635	11,927,385	18,463,680	14,900,560
Sept	9,429,660	22,394,895	.....	16,639,775
Total	$94,297,988	$152,050,840	$163,559,650	$174,872,575

It will be observed from the above tables that the increase in the aggregate transactions has been quite marked during the nine months of the current year, notwithstanding the apathetic feeling for a long time past. We estimate the transactions of the other Boards —the Pacific and California—t · be equal to about one-half of the San Francisco, showing an aggregate business for the period under review of about $262,300,000."

Eureka Consolidated (annual report).—The Superintendent submits the following, as the result of the operations of this company for the year ending Sept. 30, 1876: The Lawton shaft has been sunk 100 feet to the 9th level, or 730 feet from the surface; also two winzes have been sunk from the 6th to the 7th levels, a drift run 320 feet to connect the east winze with the caved ground of the Bonanza; this drift being the outlet for all the ore taken from this portion of the mine. There is still some ore remaining in the Bonanza cave. In the 7th level 250 feet drifts have run and a winze sunk to the 8th level. The 8th level has been run 400 feet, connecting with the west winze from the 7th level; 200 feet of drifts have been run in various directions. Between the 8th and 9th levels a body of ore has been found, from which we have extracted some 1,800 tons of fair ore. The 9th level runs north 236 feet; 173 feet from shaft we started a drift and run 560 feet, the last 300 feet of which is in favorable looking ground for ore; shall run on to west line of mine. Cross-cut No. 3 has been run 120 feet in favorable ground. 200 feet from shaft we started a winze, which is now down 60 feet. There has been extracted and delivered to the furnaces 16,800 tons of ore. Machinery has broken twice during the year, necessitating purchase of new machinery. Work was suspended from March 12th to May 29th, on account of bad weather. Shortly after commencing we struck a large quantity of water in 1st cross-cut. We hope to subdue the water so as to continue sinking Lawton shaft to another level below. Our mining outfit is equal to any in the State, with sufficient power to work to 2,000 feet. The ore now being taken from the mine is from the 9th level, Lawton, and from Windsail side.

The receipts of this company for the year, amount to about $938.000, of which sum $603,000 was derived from the proceeds of 1,760 tons of refined base bullion, and $100,000 from the proceeds of assessment No. 1 and 2. Among the disbursements we note an expenditure of $233 000 on mine account, and $205,000 for smelting. The net indebtedness of the company on the 7th inst. was about $40,000.

Gas Stocks.

NEW YORK, FRIDAY EVENING, Oct. 27, 1876.

NOTHING worth mention has been done in gas stocks during the week just closed, the market continuing dull and quiet.

Middletown, N. Y., Gas Company.—We note a recent auction sale of 100 shares of this stock at $110 per share.

Northern Liberties Gas Company, Philadelphia.—We note a recent auction sale of 40 shares of the stock of this company at $40 per share.

San Francisco Gas Company.—This company has declared its regular monthly dividend of ¾ per cent., payable on demand. We note recent sales aggregating 600 shares at 105, dividend on

Nassau Gas Company, Brooklyn.—We note recent auction sales of $2,250 of the registered certificates of this company at 101⅛ per cent; also 100 shares of its stock at 80 per cent.

Citizens' Gas Company, Brooklyn.—We note a recent auction sale of 36 shares of the stock of this company at 96½ per cent.

Manhattan, Gas Company, New York.—20 shares of the stock of this company recently sold at auction at $244 per share.

The Chicago Gas Difficulty.—The Peoples' Gas Company, through its President, has made another proposition to the city. He will probably furnish gas at $2 per 1,000 feet, the city to use any size and number of burners it may see fit. If this proposition be declined, he will fight the city on the old contract. Figures in the Comptroller's office show that the total gas bill for the month of September was $14,430, against $22,263 for September, 1875. This saving is due entirely to the new time-table.

The following list of Companies in New York and vicinity are corrected weekly by GEORGE H. PRENTISS, Broker and Dealer in Gas Stocks, No. 30 Broad st., N. Y.

Companies in New York and Vicinity	Cap. Stk.	Par.	last Dividend	When Paid.	Bid.	Askd.
			pr.c			
Mutual, N. Y.....	$5,000,000	$ 100	2½	Jan. '76	109	110
" " Bonds	90,000	1,000	†3½	Feb. '76	106	110
NewYork, "	4,000,000		5	Jan. '76	139	143
Metropol. "	2,500,000	100	5	Mar. '76	140	145
" " Certf.	1,000,000	....	3½	" "	102	104½
" " Bonds	500,000	1,000	3½	Jan. "	102	102½
Harlem "	1,850,000	50	4	Feb. '76	102	105
Manhattan"	4,000,000	50	10	July "	240	242
Brooklyn, B'klyn..	2,000,000	25	5	June '76	179	181
Nassau "	1,000,000	25	4	Jan. '76	75	—
" "Certf.	700.000	1,000	3¼	Nov. '76	95	—
People's "	1,000,000	10	3½	Jan. '76	50	55
" "Certf.	300,000	1,000	3½	Jan. '76	88	90
" " Bds	325,000	....	3½	Feb. "		95
Metropol. "	1,000,000	10	3½	Nov. '75	—	77½
Wmsburgh "	1,000,000	50	5	Jan. '76	130	—
" "Certi.	1,000,000	....	3½	Jan. "	101	102½
Citizen's " ...	1,200,000	20	2½	Jan. '76	94	96½
" "Certf.	320,000	1,000	3½	April "	98	100
J. C. N.J.....	386,000	20	5	July,'75	100	—
Centl. Westch. N.Y.	406,000	50	4	July, "	95	—
Subur'n " "	390,000	50				95

† Gold.

COMPANIES OUT OF TOWN.

We refer to our issue of the 7th inst. for the list of these.

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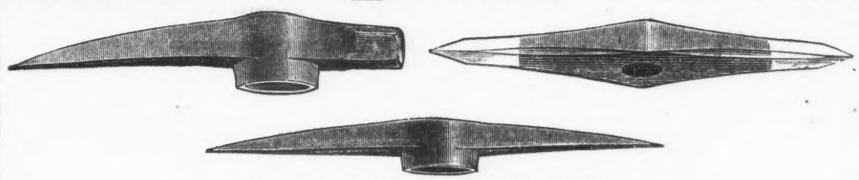

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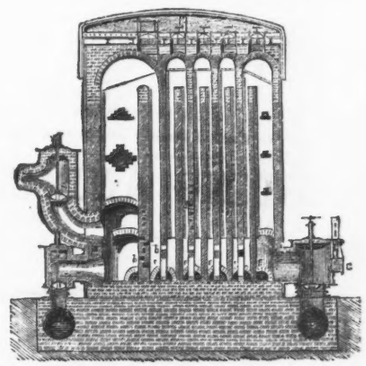

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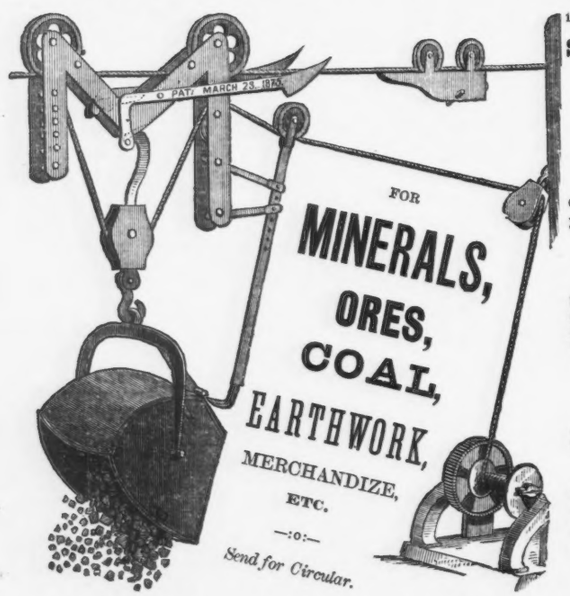

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